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APPENDIX

TO

Journals of Senate and Assembly,

OF THE

TWENTIETH SESSION

OF THE

LEGISLATURE OF THE STATE OF CALIFORNIA.

Volume III.

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G. H. SPRINGER, STATE PRINTER.
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BIENNIAL REPORT

OF THE

Board of State Harbor Commissioners

FOR

THE TWO FISCAL YEARS ENDING JULY 1, 1873.

T. A. SPRINGER.........STATE PRINTER.

REPORT.

To His Excellency, Newton Booth,
Governor of the State of California:

The Board of State Harbor Commissioners for the City and County of San Francisco, herewith present their biennial report for the period terminating July first, eighteen hundred and seventy-three. The annexed report of the Secretary, exhibits a detailed statement of receipts and expenditures.

In accordance with an Act approved March thirtieth, eighteen hundred and seventy-two, the rates of dockage, wharfage, and tolls, and the monthly payments on all leases of the water front, were reduced fifty per cent May first, eighteen hundred and seventy-two. The receipts during the last twelve months when former rates were collected, aggregated two hundred and eight thousand one hundred and fifty-six dollars and twenty-three cents, and for the year ending July first, eighteen hundred and seventy-three, in conformity with the reduction, one hundred and sixty thousand eight hundred dollars and seventy-three cents; but it should be stated that during the term first mentioned, several wharves were held under leases, and the Board having subsequently taken possession, greater receipts were obtained.

WHARVES.

Wood is the sole material used in the construction of wharves and piers, and its perishable nature, in connection with the ravages of the *teredo navalis* and the *limnoria terebrans*, render them costly structures.

Annexed is an interesting special report of T. J. Arnold, Engineer of the Board, concerning the pests referred to, and experience has shown that wharves constructed of unpreserved material, generally become worthless within ten years, and require expenditures for repairs during the time named equal to half of the original cost.

The creosoting process for the preservation of timber, has been successful in Europe and tropical countries, and its failure to prove entirely so here where it has been partially tested, is attributed to imperfect treatment.

The piles recently driven in the enlargement of Market-street wharf, were carefully prepared, and favorable results are anticipated. The attention of the Board has been called to other processes, and a willingness expressed to test their relative utility.

The report referred to, contains valuable information concerning the various modes of treatment and experience elsewhere, as to their efficacy in rendering timber indestructible. The insufficient accommodation for vessels of the largest class during a portion of last year, caused serious delays in discharging and receiving cargoes, and Market and Front street wharves have therefore been enlarged and others partially renewed, and it is believed that after the requisite dredging shall be performed, a recurrence of material delay will be avoided.

La Rue's is the only wharf under the control of the State where dockage and tolls are not collected by the Commissioners, the same having been recently assigned to the wood dealers, and the revenue received will be greater than otherwise obtained. Prior to May first, eighteen hundred and seventy-three, the Central Pacific Railroad Company occupied, for ferry purposes, the bulkhead between Broadway and Pacific wharves, and a berth at the latter, for one hundred and fifty dollars per month, and the Board, believing that greater revenue should be derived for the accommodation afforded, the company was then notified that the payment of established rates of dockage would be required, and the net receipts for two months have aggregated one thousand three hundred and thirty-four dollars and twenty-five cents. The California Pacific Railroad Company, previous to June first, eighteen hundred and seventy-three, was allowed the sole use of Broadway wharf for five hundred dollars per month, but possession was then resumed, and the net proceeds for the month were one thousand four hundred and fifty-seven dollars and sixteen cents.

DREDGING.

The expense incurred for dredging, since the creation of the Board, has been an important item, and no authority existing for the Commissioners to procure a dredger, they have been compelled, in accordance with law, to advertise for proposals for the performance of the work. The rates paid have varied from thirty-four to fifty cents per cubic yard—the last being thirty-six, and contracted for by the present Board; but the mode of computing the amount removed differs from that prevailing heretofore, and is now determined by measurement previous to the commencement of the work and after completion. The absence of competition and the excessive charges have induced the Board to limit the amount as far as consistent with the urgent demands of commerce, and authority to obtain a dredger is regarded as essential to a thorough and economical performance of the work. The constant and rapid shoaling is partially owing to the sewers emptying into the slips, and relief from this source will be referred to in suggestions concerning improvements on the entire water front.

LEASING.

In accordance with law, the wharves were advertised for lease in March last, and bids received, but the Commissioners, conceiving that the public interest would not be promoted by a compliance with the terms proposed, were induced to reject the same, and are constrained to remark, that they regard the policy of leasing generally as indiscreet. It is probable, if the property should be leased with provisions for the necessary repairs and dredging to be performed by the lessees, and the return at the expiration in like condition as received, that differences between the Commissioners and the lessees would frequently occur and lead to protracted litigation, and sureties deemed ample might ultimately prove entirely irresponsible. Power, however, should be granted to afford permanent accommodation to ferries and steamers plying regularly inland, or to coastwise or foreign ports; and authority should also be conferred to discriminate when the revenue derived, in accordance with the ordinary rates of dockage, may prove entirely inadequate to the privileges obtained. Leases to individuals or corporations, similar to those existing, should be deprecated, as rights thus acquired may prove serious obstacles in consummating changes which may be regarded as vitally important.

SEA WALL.

Owing to the limited amount of funds in the hands of the Board available for that purpose, no work has been done upon the bulkhead during the last two years.

Of the total length of sea wall originally authorized by statute—eight thousand three hundred and thirty-seven feet—there remains a length of five thousand and eighty-five feet yet to be constructed. The plan adopted for this work, as applied to the present water front, appears to have given satisfaction. The embankment has not settled materially at any place and no lateral movement has occurred.

It will be observed that the line submitted by the Engineer of the Board for a new water front, conforms substantially with the old line between Folsom and Pacific streets; and in case this plan, or a similar one, is adopted, that portion of the embankment between Pacific and Howard streets will be made to form a part of the new work. A section, six hundred and fifty feet long, between Vallejo and Union streets, would have to be abandoned as a water front, and the work performed upon it could only be utilized as so much necessary filling. The reclamation of the water lots in the block bounded by Howard, Folsom, East, and Steuart streets, has had the effect to force a large amount of mud into the slip south of Howard street, which will have to be removed by the dredger.

To avoid the useless expense which is thus entailed, the sea wall embankment should, as soon as possible, be extended southerly from its present termination near Howard street, to a point at or near Folsom street.

OBSTRUCTIONS ON THE BULKHEAD.

Upon assuming office, the present Board found the bulkheads much obstructed by lumber, wood, and other material, and even by buildings, in some instances of considerable magnitude. Efforts to cause the removal of the obstructions have resulted in partial success, and the occupants of various warehouses and offices have signified a willingness to remove when required; but positive orders have been delayed with a view to avoid what might be regarded as unnecessary harshness. The bulkhead between Market and Howard streets is much incumbered, and the ordinary business of the vicinity impeded, and the exertions of the Board to obtain a compliance with their demands have thus far proved ineffectual.

SUGGESTIONS CONCERNING THE FUTURE.

A map of the present water front, and another, indicating what the future should be, are herewith submitted. The former delineates the angles and lack of uniformity which cause increased shoaling, and it is evident that the curved frontage and wharves at right angles, as shown on the latter, and constructed with piers of durable materials and less in number, will prove of greater utility, and cause the current to essentially decrease the shoaling of the slips, and consequently the expenditure for dredging.

Further relief can be afforded by the construction of an intercepting sewer along the city front, and inside of the State line, of capacity sufficient to receive the sewage of the city, and to be flushed at each returning ebb tide by water to be retained in a basin or reservoir at its southern extremity. The amount of water which can be held and discharged at the times mentioned will be ample to thoroughly cleanse the main sewer, and thus avoid a prolific source of shoaling and materially promote the sanitary condition of the city.

A railway track, to be open to all companies, can be constructed along the entire water front, and afford facilities for delivering and receiving freights at the various wharves, and a considerable area north of Vallejo street can be reclaimed and utilized for depot purposes. The necessity for bringing ship and car together is realized in Atlantic ports, and improvements to accomplish the object desired are either progressing or generally contemplated, and prospectively a like necessity here cannot fail to be apparent. The expenditure necessary cannot be estimated until the extent of the improvements shall be defined, and the Board respectfully recommend the appointment of a Commission, consisting of competent engineers and others of commercial and maritime experience, to report in reference to the entire matter.

WAYS AND MEANS.

If it shall be determined to remodel the entire water front, the question will arise as to the ways and means to accomplish the change. The only resorts are the creation of a bonded debt or the imposition of an annual tax. The former is beyond the power of the State, and the latter would encounter hostility elsewhere than in the City of San Francisco.

Under these circumstances, the propriety of transferring the property to the city, coupled with restrictions that may be deemed advisable, and authorizing the issuance of bonds or a tax levy for a series of years, may receive favorable consideration.

The creation of a public debt for an object which can be accomplished by an annual imposition which would not be regarded as oppressive, is questionable, and in the event of a transfer the latter may be deemed more in accordance with sound policy. A bonded debt would require that sufficient should be realized from dockage and wharfage for the annual interest and a Sinking Fund for the extinction of the debt at maturity, while taxation for defraying the cost as the work may progress would obviate the necessity for excessive rates, and when completed, for sufficient only for dredging and ordinary repairs. The assessed value of real and personal property for the present year approximates two hundred and fifteen million dollars, and a tax of ten cents on each one hundred dollars would yield two hundred and fifteen thousand dollars, and as it would be necessary to prosecute the work by sections, and not essentially decrease the accommodation requisite for the commerce of the port, it is believed that the amount named would be as much as could be judiciously expended annually.

Less than twenty-five years have elapsed since San Francisco became a port of entry, and she now ranks as third in the collection of duties on imports. There are those prominent in her commercial marts who remember when, in early manhood, the surroundings of the harbor were in a state of nature, and the past inspires sanguine hopes of the future.

Intercourse with Eastern Asia, Australia, and the islands of the Pacific, cannot be regarded as more than inaugurated, and although corporate greed and rapacity may seek the consummation of schemes injurious to her interests, it may not prove fallacious to predict that when another like period shall terminate, she will surpass all save the great metropolis of the Nation.

For details concerning various matters the Commissioners refer to the report of T. J. Arnold, Engineer, and to that of J. F. Swift, Esq., special counsel, respecting pending litigation.

LEWIS CUNNINGHAM.
SAMUEL SOULE.
T. D. MATHEWSON.

REPORT

OF

T. J. ARNOLD, ENGINEER OF SEA WALL.

REPORT.

Engineer's Office, San Francisco, July 30th, 1873.

To the Honorable the Board of State Harbor Commissioners:

Gentlemen: I herewith respectfully submit my biennial report for the period ending July first, eighteen hundred and seventy-three.

BULKHEAD.

No work has been done on the sea wall embankment since the date of my last report. I take pleasure in saying that I have seen no reason to qualify, in any manner, the favorable opinion which I have heretofore expressed of the plan adopted by the Board for this important work. With some modifications in the specifications and careful attention to the materials used, I believe it will accomplish all that was claimed for it by its projectors. That portion of the embankment which was first constructed has settled very little, if any, in the last two years; but upon the section which was completed in eighteen hundred and seventy, I have noticed a slight settlement, which is due probably to the compacting of the material. I have not been able to discover anywhere the least lateral movement of the embankment.

WHARVES.

The total amount expended during the last two years for work performed under contract, upon the various wharves on the city front, is forty-eight thousand three hundred and forty-seven dollars and three cents, as follows:

Wharves.	Amount.	
Market-street wharf	$19,273	80
Front-street wharf	7,752	50
Pacific-street wharf	6,303	20
Mission-street wharf	4,020	24
Howard-street wharf	3,515	60
Jackson-street wharf	2,881	14
North Point wharf	2,128	93
Spear and Bryant-street wharf	1,372	97
La Rue's wharf	836	60
Commercial-street wharf	143	55
Washington-street wharf	118	50
Total	$48,347	03

Market-street wharf was replanked in December, eighteen hundred and seventy-two, and in May of this year was widened from fifty feet to eighty feet, the new portion being constructed of preserved piles. At the same time ninety new standard piles were driven under the old structure. The wharf is now in good condition, and, from its position, it is one of the most important, and will undoubtedly be one of the most profitable wharves, on the city front. Pacific, Jackson, and Howard-street wharves have been entirely replanked and otherwise repaired. Front-street wharf has been widened from fifty feet to seventy-five feet, and is now capable of accommodating five first-class ships. Mission-street wharf was partly replanked in October, eighteen hundred and seventy-two, and a section of it, two hundred and sixty feet in length, is now being rebuilt by W. H. Martin & Co., under a contract with your honorable Board. The other wharves included in the above schedule have been variously repaired by planking and driving standard and fender piles where necessary.

In addition to the work above enumerated, fifty-eight thousand five hundred and seventy-five dollars and eighty-seven cents have been expended in

URGENT REPAIRS.

Making the total amount of money expended for wharves in the last two years, one hundred and six thousand nine hundred and twelve dollars and ninety cents. I find on reference to the records that the items embraced under the head of urgent repairs, are so numerous as to render a detailed statement of them in this report impracticable. The cost of nearly all the fender piles which are driven from time to time, and a great portion of the "patching," which is a source of constant expense, is included under this head. Broadway, Pacific, Washington, Clay, Commercial, and a great part of Market-street wharves were constructed upwards of eighteen years ago. The piles in some of these wharves have been renewed three times, and upon those which have sustained a heavy traffic, the planking has been replaced, on an average, every three years. The cost of repairs on Pacific-street wharf, since it came into the possession of the Board (February, eighteen hundred and sixty-seven), has amounted to a sum sufficient to build two first-class wharves of equal dimensions.

DREDGING.

During the last two years two hundred and fifty-three thousand six hundred and forty cubic yards of mud have been removed from the various slips along the city front, at a cost of eighty-six thousand two hundred and thirty-seven dollars and sixty cents, as follows:

Wharves.	Cubic yards.
At Vallejo-street wharf	56,710
At Market and Howard-street wharves	40,470
At Pacific-street wharf	26,160
At Mission-street wharf	25,780
At Market-street wharf	21,720
At La Rue's wharf	21,080
At Eureka and North Point wharves	17,530
At Broadway wharf	17,510
At Front-street wharf	16,010
At Main-street wharf	10,670
Total	253,640

The Board has recently entered into a contract with W. H. Taylor for the removal of two hundred thousand cubic yards of mud (more or less), and Mr. Taylor is now engaged in the prosecution of the work. Upon the completion of the present contract, the Board will have expended for dredging, since its organization, a total sum of four hundred and one thousand three hundred and sixty-one dollars and ten cents, as follows:

	Date.	Amount.
Amount as per biennial report of	1867	$54,406 50
Amount as per biennial report of	1869	73,359 00
Amount as per biennial report of	1871	115,358 00
Amount as per biennial report of	1873	86,237 60
Present contract	....	72,000 00
Total	....	$401,361 10

Even with this large expenditure the Commissioners have been able to do little more than to excavate trenches alongside the wharves, just wide enough and deep enough to admit vessels at high water. In the middle of the slips the mud has accumulated from year to year until it is now, in places, barely covered at low water.

In my biennial report of eighteen hundred and seventy-one, I called attention to the rapid accumulation of mud along the city front, and, in pointing out the cause, suggested what I conceived to be the only remedy for the evil, namely: a modification of the line of the water front, and the enactment of such laws as would enable the Board to construct the wharves in such a manner, and upon such lines, that they would obstruct the currents of the bay as little as possible.

The Act of March fifth, eighteen hundred and sixty-four, under which all improvements on the water front are made, is defective in several ways. It provides for the building of a sea wall upon arbitrary lines, without apparent reference to the depth of water or directions of the currents; it exposes abrupt angles and obstacles to the ebb and flow of the tide, and, without regard to this vital element in preserving depth of water, requires the wharves to be constructed on the extension of the lines of streets terminating on the city front. The wharves so constructed, in conformity with law, are of unequal lengths, and, owing to the want of parallelism in the streets north and south of Market street, are extended at various angles with each other, causing the waterway, under the wharves, to be partially closed to the free action of the tides, and rendering it impossible to keep berths open to shipping without constant and expensive dredging.

As a fundamental proposition, it may be said that the piers should be constructed, in respect to length and alignment, with direct reference to the currents of the bay. The lengths should be graduated so that the pier-head line will conform to the general direction of the tidal path, and the piers should be located upon such lines that the supports, reduced to a minimum, will offer the least possible obstruction to the passage of the water.

A due regard to these principles, in the construction of wharves, and a rectification of the present angular water front, would, in my opinion, reduce the amount of dredging, now required to accommodate shipping, at least one half.

In view of the enormous outlay for dredging, and the constantly increasing expense entailed by the system of "patching" old wharves, to which we are driven, the practical question for the Board to consider, is: should the errors which were inaugurated before the Harbor Commission was created, and which the Act of eighteen hundred and sixty-four in effect continues, be perpetuated, or should a general and comprehensive plan be adopted which will meet the business requirements of a great city?

The time cannot be far distant when each branch of trade will demand wharf accommodations especially adapted to its peculiar requirements. Piers must be provided for steamers and vessels engaged in foreign trade, in domestic trade, in the wood and coal trade, in the trade in lumber and building materials, in the hay and grain trade, in fruit, vegetables, fish, and other market supplies, and the dimensions of each wharf, and the plan upon which it is constructed, must depend in each case upon the use to which it is to be applied. In order that cheap and rapid communication may be effected between land and water transportation—a matter of vital importance to San Francisco—provision should also be made for railroad tracks along the city front.

I submit a map showing somewhat, in detail, the general features of the plan which is here outlined.

This plan, in brief, provides for a street two hundred feet wide along the whole city front, following the curved lines, which mark the course of the tides. Two railroad tracks are shown upon this street for its entire length, with spur tracks extending out to and along the piers. Starting from this main street, the wharves are projected at right angles to the currents, and have an average length of about three hundred feet. In order to utilize the sea-wall embankment between Pacific and Howard streets, which has been completed, a slight angle is made in the proposed line, near Market street, but the length of the wharves are so graduated that the pier line along this portion of the city front is straight.

The piles in all new wharves, which form a part of this system, should be preserved so thoroughly as to render their protection against the attacks of the marine worms a matter of absolute certainty. In this respect we should be guided by the experience obtained on similar works in Europe, where piles treated by the creosote process have been found to be perfectly sound after an exposure of over thirty years.

Special legislation will be required to enable the Board to modify either the line of the water front or the plan of improvements now in process of execution. If the evils growing out of the present system are not overrated, it would seem proper that the change should be made as soon as possible. The facilities for loading and unloading vessels have been found inadequate for the accommodation of the increasing commerce of this port, and any new work undertaken under the present laws relating to harbor improvements, will be constructed upon principles known to be erroneous. The railroad policy of the city, and perhaps of the State, may turn upon the feasibility of reaching every point on the city front with loaded cars. The exact location of a new line for the water front should be determined by a careful and patient study of the currents of the bay; and in order that all possible errors may be avoided, I would suggest that before taking final action the Board should have the best engineering advice that can be obtained.

Respectfully submitted.

T. J. ARNOLD,
Engineer of Sea Wall.

REPORT

ON THE

PRESERVATION OF TIMBER.

REPORT.

ENGINEER'S OFFICE,
San Francisco, February 3d, 1873.

To the Honorable the Board of State Harbor Commissioners:

GENTLEMEN: In compliance with your instructions, I have examined the subject matter of the communication from I. C. Woods, Esq., manager of the wood-preserving works located in this city, and also that of Thos. C. Wallace & Co., and respectfully submit the following report:

The preservation of woods, by means of chemical preparations, has been the subject of many interesting experiments both in the United States and in Europe. From the nature of the investigations, the value of the several processes which have been suggested can only be ascertained by actual trial after such tests as time alone can furnish. No experiments that I have made myself can, therefore, be of any material interest; and in the discussion of the question, I am driven to the necessity of referring you almost entirely to what has been done by others. As the subject is one of great importance in its bearing upon projected improvements on our water front, I trust I may be pardoned for treating it somewhat at length.

The destruction of our wharves arises from two causes:

First—The marine worms which feed upon the piles; and

Second—The rapid decay of the Oregon fir timber composing the superstructure.

The marine worms which destroy our piles are of two kinds, namely, the *teredo navalis* and the *limnoria terebrans.*

The operations of the *teredo* have been pretty thoroughly observed by scientific men, but the habits of the worm itself have not been so well studied. So far as I know, the germ of the *teredo* seems to exist in all sea water above a certain temperature, but its presence there cannot be detected, even under the magnifying power of the most powerful microscope. It needs for its development a habitation of wood from which the bark has been removed. A series of interesting experiments were made at the Norfolk Navy Yard, prior to eighteen hundred and sixty-one, by Calvin Brown, Esq., now Government Civil Engineer at Mare Island. In the course of these experiments, he found that the young *teredo* had entered a piece of wood one eighth of an inch in thickness, which had only been submerged eight days. The outer surface of the wood, under the microscope, showed no signs of perforation by the worm; but a thin shaving, planed off, exposed their holes, though not visible without the glass. Deeper excavation brought to light the worm itself, which was then so small as to be nearly invisible to the naked eye. It appeared to be a small white bulb, but under the glass it showed the perfect *teredo*. This germ would grow at Norfolk from six to twelve inches in length and three eighths of an inch in diameter during one Summer.

The *teredo* has neither legs, fins, nor other apparent means of locomotion. Its head, which is in two parts, is of the ordinary sea shell substance, and fills one end of the cavity it inhabits. The wood is bored by the head, its two parts working on a hinge, into fine dust, which passes through the gelatinous body of the worm, perhaps furnishing it food. This gelatinous body entirely fills the cavity made and inhabited by the worm. The body terminates in a flattened tail protected by a thin shell covering. At its junction with the body, the tail can be opened into two equal parts, indicating one straight intestine from the head to and through the tail. The *teredo* can at will project this tail through the hole by which it entered the wood, and this is its means of communication with the sea water. Without sea water, if allowed to remain in the wood, the worm dies in from twenty-four to forty-eight hours; removed from the wood, it dies almost instantly, and its body shrivels to a mere thread.

The *teredo* is said by naturalists to be oviparous, and that its young, immediately after birth, attach themselves to the first attainable wood, and begin to bore it. Whether they impregnate the waters of the harbor by being brought into it in worm-eaten wood, or whether after leaving the mother they remain in an imperfect condition in the water for an indefinite period, until they drift against a piece of wood floating or fixed; or whether the young *teredo* forms a living colony in the honey-combed piles, are among the habits of this destructive pest which are yet to be investigated.

In our eastern harbors, they are said to disappear during the Winter months, or at least to cease their ravages, and then to reappear or recommence their operations with the opening of Summer. In this harbor they never cease their operations, so far as we have been able to observe their habits.

The *teredo* enters the piles across the grain of the wood, between the top of the mud and ordinary low-water mark, and after entering, it bores with the grain upward as far as high-water mark, and downward to the line of the mud; but never below the line of the mud and never out again into the water.

The *teredo*, as I have before mentioned, never eats the bark of the wood, and only enters the piles after the bark has been removed.

The *limnoria terebrans* has only recently made its appearance in our waters. It comes originally from the tropics, and is brought here no doubt by vessels whose planking has been eaten by it. This worm cuts the piles entirely across the grain, eating from the outside, and making great cavities in the wood. They seem to prefer being left exposed a portion of the time by the receding tide. It eats the wood just below ordinary high-water mark.

This worm was first noticed in England in eighteen hundred and eight, by the late Robert Stevenson, and was named and described by Dr. Leach, in eighteen hundred and eleven. The following is the description of the *limnoria* as found in English waters:

"Gregarious and abundant; attacks by preference the pine family; does not attack floating wood; is from one fifth to one third of an inch long, rounded at each end, with parallel sides; has fourteen segments, the last two being the largest; the seven next to the head each bear a pair of strong mandibles which are the boring organs. General color olive gray; can swim as well as creep; when touched rolls itself into a ball like the common sow bug, which it much resembles."

This description answers precisely to the newly discovered worm which has so recently made its appearance in the waters of this harbor. Piles are eaten by them completely through, so that one piece will remain attached to the cap of the wharf while the other is found projecting from the mud. The operations of this worm may be seen at North Point and Greenwich Docks.

THE DECAY OF OREGON FIR TIMBER IN SAN FRANCISCO.

The best authorities agree as to the Winter months, when the sap is down, being the time for cutting timber, in order to secure the best quality of material which the tree is capable of producing. They also agree as to the necessity of thoroughly seasoning the same wood before using it. Our wharf material here is often growing in the forests bordering Puget Sound ninety days before it is framed into the wharf. In an exhaustive report made by Chas. R. Story, Chairman of Special Committee, addressed to the Board of Supervisors of this city, July thirtieth, eighteen hundred and seventy, upon the subject of street pavements, he uses the following language in reference to timber on this coast:

"The time of year within which trees are felled has very great influence on the durability of the wood. To secure the best qualities of the wood the tree should be felled when the sap is down, that is, in the Winter months. It is this fact which makes the Winter months the season for logging. In the East the snow forms the bed for hauling the logs, and the swollen rivers in the Spring carry the logs to market. In this country we have neither Winter nor snow, and but few rivers used for rafting; hence on the Pacific Coast, the timber trees are cut at all seasons of the year, and beyond doubt a portion of the bad reputation attaching to some species of wood is owing to this cause. Nearly all the wood brought to this market comes by vessel, green, and of course steamed in the hold, hence may be injuriously affected by this confinement. We can never bring logging to the system of Winter cutting practiced in the East, and this is an additional reason why, in San Francisco, we must resort to some wood-preserving process to protect us against decaying wood."

In our own experience, on works under the control of the Harbor Commissioners, we have found that piles are attacked by the *teredo*, as soon as the bark falls off, which is in about two years after they are driven; that fender piles are so weakened by these attacks, that in four years they will not sustain any considerable lateral pressure; that standard piles, having to sustain a vertical pressure, will last from seven to eight years, but at some risk after the sixth year, and that Oregon timber, when exposed to moisture, begins to decay in from five to eight years.

Having glanced at the causes of the rapid destruction of our wharves, I will now consider what may be done to preserve them from decay and the ravages of the marine worm.

Upwards of fifty patents have been taken out for the preservation of timber by chemical preparations, the mode of application generally being to force the solutions into the pores of the wood by pressure in close vessels. The best known, and perhaps most valuable compounds employed, are chloride of mercury, sulphate of copper, chloride of zinc, sulphate of iron, carbonate of soda, and creosote or pitch oil. While some of the metallic salts have been found to prevent dry rot, none of them appear to protect submerged timbers from the attacks of the marine worms. Professor Wood, of the Michigan University, in a recent treatise on the preservation of timber, says: "It was naturally supposed that poisoning the timber would poison or drive away the *teredo*, but Kyan's and all other processes employing solutions of the salts of metals of alkaline earths, signally failed. The constant motion of sea water soon dilutes and washes away the small quantity of soluble poison with which the wood has been injected. If any albuminate of a metallic base still remains in the wood, the poisonous properties of the injection have been destroyed by the combination. Moreover, the lower vertebrates are unaffected by poisons which kill the mammals. Indeed, it is now known that certain of the lower forms of animal life live and even fatten on such deadly agents as arsenic."

A paper read at a meeting of the Philosophical Society of Glasgow, by Mr. P. M. Moir, and published in eighteen hundred and sixty-nine, contains a concise statement of the conclusions arrived at relative to the value of the various European patents for preserving wood from the attacks of the marine worm, and is, in a measure, a summary of the opinions of nearly all recent writers on the subject. He says:

> "Kyanizing, or injecting corrosive sublimate into timber, is very expensive, if properly done, and besides this, there is the fact that it is practically useless, inasmuch as it has been found that Kyanized piles after three years immersion in the sea, did not contain a trace of the preservative compound.
>
> "Sulphate of copper, first suggested as a preservative by Margary, and afterwards largely employed by Boucherie, may be used to prevent dry rot in timber, but for piers, bridges, and other structures, which are exposed to the action of water, it has no practical value, as the water dissolves out the salts with great rapidity. Timber prepared with this salt, and used for marine purposes, is as readily destroyed by the *teredo* and *limnoria* as unprepared timber.
>
> "In Payne's process, a solution of sulphate of iron is first absorbed into the wood, and afterwards carbonate of soda. Double decomposition ensues, and the practical result is the formation of oxide of iron, the decomposition of which renders wood brittle, and does not prevent attacks of either of the worms just named."

Professor Baird, of the Smithsonian Institute, in commenting upon a series of experiments conducted in Holland, under the direction of the Academy of Sciences, of Amsterdam, says:

> * * * "Trial was made of sulphate of copper, sulphate of iron, acetate of lead, corrosive sublimate, soluble glass, chloride of calcium, and chloride of zinc, tar oil, creosote of oil, etc. Of these,

> the creosote oil experiment alone presented any positive indications of beneficial result, and in it the committee found what they sought for. After five years of exposure, while all other piles, whether prepared or not, were entirely eaten up, those impregnated with this substance were perfectly sound and free from any trace of worms. * * * Impregnating wood with soluble inorganic salts which are poisonous to animal life, furnishes no protection against the worm. This is due to the fact that the sea water soon dissolves away their strength, and the worm does not devour or digest the wood bored out by means of the shelly jaws."

Attempts have been made to find insoluble deposits in the interior of timber by first injecting a solution of one metallic salt, and afterwards forcing into the pores another solution which will combine chemically with the first and form a compound that water will not dissolve. This has failed in practice, for the reason that actual contact in the ligneous cells cannot be obtained. Surgeon General Barnes, of the U. S. Army, in his report on the preservation of wood pavements, says: "In those processes which design to fill the pores of the wood with insoluble substance (formed by a rearrangement of several chemical compounds), the reaction which occurs is only partial, and confined to the superfices, being hindered by the formation of the insoluble salt, at and near the surface. * * * * My experiments show that it is always possible to dissolve and remove entirely any mineral or metallic salt which may have been deposited, with any degree of thoroughness, throughout a paving block."

It is unnecessary to multiply authorities on this point. It may be considered as a settled fact that none of the metallic or mineral salts injected into timber will preserve it from the attacks of the marine worms. It is proper to add here, however, that some of the solutions referred to will prevent decay, and can be economically applied. Sulphate of copper, applied as proposed by Thomas C. Wallace & Co., has been successfully used for the treatment of railroad ties and other timbers, both in the United States and Europe. The end of a green stick is inclosed in a close fitting collar, to which is attached an impervious bag, communicating through a flexible tube, with a reservoir containing the solution, elevated to a height of from thirty to forty feet. Hydrostatic pressure soon expels the sap and other fermentive matters at the opposite end of the stick. When the solution makes its appearance, also, the process is completed.

In eighteen hundred and forty-six, eighty thousand sleepers of the most perishable wood, impregnated with sulphate of copper, were laid down on French railways. After nine years exposure, they were found as perfect as when laid. The experiment was so satisfactory that most of the railways in France at once adopted the system.

It is claimed that this method of applying the material accomplishes two objects—that of expelling the sap, and filling the pores with a preservative solution. The invention seems to be confined to the method of applying the solution; Messrs. Wallace & Co. offering, in their communication, to treat piles and timber with creosote oil, sulphate of copper, or any other well known solution. If creosote oil, or the dead oil of coal tar, can be forced into piles by this apparatus, which I doubt, the process will give very satisfactory results.

THE CREOSOTING PROCESSES.

Creosote oil, or dead oil, as it is usually termed in the United States, is, so far, the only substance met with that furnishes a complete and perfect protection against the marine worm. It is obtained by distillation, from ordinary gas tar. In the Eastern States, forty barrels of tar will yield two barrels of benzine, ten barrels of dead oil, and about twenty-seven barrels of pitch. The benzine sells there at twenty-five cents, the dead oil at nine cents, and the pitch at thirteen cents per gallon. At nine cents per gallon, about one cent per pound, dead oil is the cheapest known material for the preservation of wood, and is also the best. The first successful application of creosote oil was made by Mr. John Bethell, who obtained a patent for his process in England in eighteen hundred and thirty-eight. In his pamphlet, Mr. Bethell thus describes his process:

> "The timber, being first dried, and cut according to pattern required, is carefully weighed, and is then placed in a cylinder of wrought iron, the doors of which are hermetically closed. The air and moisture contained in the wood are then exhausted from it and from the cylinder containing it, by a powerful air pump. The pores of the wood being now empty and capable of being absolutely filled, the preservative material, called creosote oil (which consists of the heavy bituminous oils distilled from gas, tar, and pitch), heated up to one hundred and twenty degrees Fahrenheit, is forced into the body of the timber by powerful hydrostatic pumps, exerting a pressure of one hundred to two hundred pounds per square inch. This pressure is maintained until it appears that the proper quantity of creosote oil has entered the wood. The wood is then taken out and weighed, to verify the result."

He states that the amount of oil required for railway sleepers, bridges, etc., is seven pounds to the cubic foot, and for marine purposes, ten pounds to the cubic foot.

Mr. Moir, in the paper before referred to, states: "In no case does the evidence regarding the value of the process seem to equal that in favor of the creosoting process, patented by Bethell. * * * Creosote acts very powerfully in coagulating the albumen contained in the cells of the wood, and besides this, it effectually preserves the fibre of the timber, and hence its value over all other so-called preservative agents.

"Since the creosoting process was first introduced, in the year eighteen hundred and thirty-eight, it has been extensively employed in Great Britain and Ireland; in all the other countries on the continent where creosote oil can be obtained—France, Holland, Belgium, Germany, Spain, Portugal, and Italy; and in India, Cape Colony, Brazil, and other tropical countries—to preserve timber from the attacks of the white ant. Wherever it has been properly carried out, it has been completely successful."

Mr. Brunel, Robert Stevenson, Thomas McClean, A. Forrestier, M. Crepin, T. E. Harrison, Mr. Hawkshaw, and many other eminent engineers and scientific men, concur in this estimate of the value of the creosote process.

Dr. Letheby, the celebrated English chemist, states that creosote acts as a preservative agent in the following ways:

1. It coagulates the albuminous substances and gives stability to the constituents of the cambium and cellulose of the young wood.
2. It absorbs and appropriates the oxygen which is within the pores of the wood, and so checks, or rather prevents, the eremacausis of the ligneous tissue.
3. It resinifies within the pores of the wood, and in this way shuts out both air and moisture.
4. It acts as a positive poison to the lower forms of animal and vegetable life, and so protects the wood from the attacks of fungi, acari, and parasites.

Under date of December tenth, eighteen hundred and seventy, General Q. A. Gilmore, United States Army, in communication to General A. A. Humphreys, Chief of Engineers United States Army, writes as follows:

> "After a careful inquiry concerning the various methods of preserving timber from decay, and from attacks of land and marine worms, now practiced, I am convinced that the Bethell process patented in England in eighteen hundred and thirty-eight, and the two American modifications of it, known respectively as the Seely and Robins process, are both cheaper and more effectual than any other preservative methods now in use. They consist in impregnating the timber to a greater or less degree with carbolic acid, contained in creosote of coal tar."

General T. J. Cram, of the United States Engineer Corps, while in charge of the improvements of the St. Clair Flats, in Michigan, submitted to General Humphreys an interesting report on this subject, from which I copy the following tables:

Results of creosoting wood for railroad ties in foreign countries, compared with duration of the same wood uncreosoted, for ties.

NAME OF RAILWAY AND AUTHORITY FOR THE EXPERIMENT.	Kind of wood creosoted and used for the ties and longitudinal timbers.........	Period of years in use after creosoting....	Condition at expiration of that period....	Period of duration for the same purpose uncreosoted...
Manchester and Crewe R. R................. Building News, July 5, 1870.	American white fir.	32	Perfectly sound.	Not stated.
Cologne and Minden R. R.................... G. Freme, Inspector.	Not stated.	12	Perfectly sound.	4
India Railroads.................................. Mr. Burt.	Not stated.	20	Perfectly sound.	Not stated.
Stockton and Darlington R. R.............. Thos. Summerson, Inspector.	Yellow pine.	26	Perfectly sound.	6½
Yorkshire and Lancashire R. R............ James Price.	Not stated.	24	Perfectly sound.	Not stated.
Middleborough & Great Western R. R. James Price.	Red Baltic fir.	9	Perfectly sound.	Not stated.
Great Eastern R. R.............................. Samuel Dawson, Superintendent.	Scotch fir.	16	Perfectly sound.	Not stated.
Belgium Railroads............................... Minister of Public Works.	Red pine, oak, beech.	19	Perfectly sound.	Not stated.
Austrian, French, Prussian, and Russian Railroads................................. George Sheppard Page.	Baltic fir.	20	Perfectly sound.	4

Results of creosoting wood in foreign countries for props in collieries, compared with the duration without treatment.

PLACES OF EXPERIMENT AND AUTHORITY.	Kind of wood creosoted and used.........	Period of years in use after creosoting ...	Condition at expiration of that period...	Period the wood lasts without creosoting ....
South Durham colliery................. Adam Hackworth, overseer.	Not stated.	15	Perfectly sound	¾ of a year.
Tanfield Moor colliery................ James Joicy & Co.	Larch.	7	Perfectly sound.	1½ years only.
Mickley colliery .... Mathew Liddell.	Larch. Scotch fir.	14 14	Perfectly sound.	6 years. 4 years.

Result of creosoting for marine works.

PLACES OF EXPERIMENT AND AUTHORITY.	Kind of wood creosoted......	Period of years in use after creosoting ...	Condition at expiration of that period...	Period the wood would have lasted uncreosoted before destruction by worms.........
Ostend harbor............................... L. Crepin, Engineer, etc.	Baltic fir.	7	No attack. Sound.	2
Leith pier and harbor.................... Thomas Maclane, Engineer.	Not stated.	12	No attack. Sound.	3½
Docks at Monk Wearmouth......... A. Forestier, Engineer.	Yellow pine.	20	No attack. Sound.	Not stated.
Tiegnmouth .... Mr. Brunel, Engineer.	Not stated.	7	No attack. Sound.	Not stated.
Grimsby .... Edam Smith, Engineer.	Not stated.	7	No attack. Sound.	3
Portland breakwater................... John Code, Engineer.	Not stated.	4	No attack. Sound.	3

In reference to the foregoing tables, General Cram remarks: "It is to be observed that at the expiration of the periods expressed in the third columns of the tables the timber which was treated is reported perfectly sound. There is no evidence showing how much longer it will last, and I can find no evidence of any which has been creosoted having yet decayed, or having been attacked by worms."

Upon General Cram's recommendation, the Government adopted the Seely process for the treatment of all the timber used in the improvement of the St. Clair Flats.

This process consists in subjecting the wood to a temperature above the boiling point of water, and below three hundred degrees Fahrenheit, while immersed in a bath of creosote oil, for a sufficient length of time to expel the moisture. When the water is thus expelled the pores contain only steam, and the hot oil is quickly replaced by a bath of cold oil, by means of which change the steam in the pores of the wood is condensed and a vacuum formed into which the oil is forced by atmospheric pressure and capillary attraction. Six to twelve pounds of creosote oil to the cubic foot of wood is expended in this process, the amount depending on the use to which the wood is to be put. For piles or other timber exposed to the depredations of worms, twelve pounds is used.

In eighteen hundred and seventy-one Mr. Calvin Brown, Civil Engineer, and Messrs. Hanscom and Varney, Naval Constructors at the Mare Island Navy Yard, were instructed by the Navy Department to examine the Robins process for preserving timber. Under date of July twenty-first, eighteen hundred and seventy-one, they made a report to the Department, approving of the process, and recommending that it be applied to all timbers used at the yard for the upper part of ships frames, to keelsons, ceilings, clamps, beams, knees, etc.; also, to soft wood work for magazines, store-rooms, and cabins; to masts, spars, and all wood work for boats. They also recommended that it be applied to all materials required for piling, capping, planking, etc., for wharves and foundations, and, in a word, to nearly all timbers and lumber used for any purpose at the yard.

Accompanying the report is a concise history of experiments made by them to determine the influence of the process on the strength of wood, and as to combustion by fire. Also, the result of their investigations to determine the influence of the process in preserving timber from decay, and from the attacks of the *teredo navalis*. On this latter point they say:

> "We visited the establishment of the Pacific Mail Steamship Company, in San Francisco, where we saw interesting evidence of the efficacy of the process in preserving piles from the destructive operations of the marine worm. A pile of Oregon pine, seven and a half inches in diameter, had been prepared expressly for this experiment by being first split through its center in its whole length in two portions. One of these portions was preserved in the usual manner of other timber, and the other left in the natural state. The two parts of the pile were then hooped together, the cleaved surfaces exactly fitting each other, and placed under water in a vertical position, being securely bolted to a stationary pile of the company's wharf; the top of the prepared pile was always under high water at least three feet, and about three fourths of its entire length was constantly under water. The pile had remained in this position since July, eighteen hundred and sixty-nine, and consequently had been subjected to all the influence thereof for twenty-two months. On being taken up in our presence, and a section sawed off the lower end, the unprepared portion was found to be penetrated by several large worms, while the prepared part remained entirely sound and intact."

After citing other instances of like effect, they say: "While these experiments afford conclusive proof of the immunity of timber, thus prepared, from the *teredo navalis*, during the time mentioned, there is no doubt in our minds that a prolonged and indefinite exposure would be attended with the same perfect defense."

The following tables show the result of their experiments to determine the influence of the process on the strength of wood. It will be observed that the strength of the preserved wood in the case of California laurel is ninety-six per cent of that of unpreserved wood; in Eastern white oak eighty-eight per cent, and in Oregon pine ninety per cent. "It was shown, however, on a comparison of the final series of trials with those first made, with wood freshly treated by the process, that the preserved specimens materially increased in its transverse strength, and in the trials with several specimens of Oregon pine, which had been preserved two years, twenty per cent more resistance to breaking weight was observed. * * * Our experiments in burning the preserved wood showed the thoroughness of the process, as illustrated in the specimens operated upon; the preserving materials had permeated the whole mass of the sticks."

EXPERIMENTS

In testing transverse strength of various woods at navy yard, Mare Island; specimens of wood one inch square, sectional area, lengths between supports, two feet.

Name of wood.	No. of pieces.	Condition.	Average breakage weight in pounds.		Average deflection when broke (in inches).
Laurel............	6	Preserved.....	273 lbs.		1⅓
	10	do.	264 "		1½
	6	do.	375 "	297 lbs.	1⅛
	6	Unpreserved..	306 lbs.		1¼
	10	do.	306 "		1⅓
	6	do.	388 "	329 lbs.	1¼
Eastern oak....	9	Preserved.....	323 lbs.		2⅓
	6	do.	348 "	333 lbs.	1 11-12
	9	Unpreserved..	290 lbs.		1⅝
	6	do.	397 "	332 lbs.	2¼
Oregon pine....	1	Preserved.....	268 lbs.		⅝
	9	do.	300 "		1
	5	do.	354 "		⅝
	6	do.	363 "	325 lbs.	¾
	1	do.	443½ lbs.	443½ "	⅝
	* 4	do.	453 lbs.	453 lbs.	1
	1	Unpreserved..	384 lbs.		1
	9	do.	349 "		1⅛
	6	do.	390 "		11-16
	6	do.	401 "	376 lbs.	11 1-16

* These four pieces Oregon pine had been preserved nearly two years.

In regard to the influence of the process in preventing the decay of wood, Messrs. Brown, Hanscom, and Varney say: "From the above facts, we are forced to admit the superiority of the prepared over the unprepared wood, in cases where exposure to earth soils exist, but to what length of time, beyond that herein observed, this superiority may be claimed, we have no means of possibly judging. We see no reason, however, for doubting that the sound condition of prepared wood may be continued many years."

The Robins process, as practiced in San Francisco, is as follows: The bark being first removed from the piles, they are placed upon cars, some forty at a time, and hauled into a tank eighty feet long, by fourteen feet high, and eleven feet wide; the doors are then closed, and steam is let into the tank, at a low pressure, for the purpose of washing out from the wood the albumen, and any fermentative deposits left in it by the sap of the tree. After this steam washing, the wood is dried by means of a steam coil and ventilation, and is then ready to receive the oleaginous vapors. These vapors are generated from coal tar placed in a closed still, capable of holding two thousand gallons. The first products of the tar, viz: naphtha and ammoniacal water, are allowed to pass off separately. When the thermometer in the top of the still indicates a heat of two hundred and twenty degrees, the vapors are turned upon the wood and the still kept running until the same thermometer indicates a heat of four hundred and twenty degrees. The firing under the still now ceases, but it remains connected with the tank for ten or twelve hours longer, when the wood is preserved ready for use. It is hauled out the same way it went in, loading and discharging being done by steam.

It is claimed by the patentees that while the piles thus treated are not impregnated through and through when they come from the tank, yet the circumference has received a sufficient quantity of the creosote to prevent the worms from effecting a lodgment on the surface of the pile. It is also claimed by the Robins patentees that the process of impregnating the piles or square timber through and through is completed by climatic influence, aided by the penetrating nature of the oils themselves, after the wood is removed from the tank. In small timber and planking the process is completed before they are taken from the vapor bath. The patentees also claim, and prove, that the thorough impregnation of the wood in this vapor bath is only a question of time and of consequent price per thousand feet.

From what has now been shown, I think I am warranted in saying that the protection of timber against rot and marine worms is narrowed down to the question as to the quantity of dead oil necessary to be injected into the pores of the wood. As stated repeatedly by the best authorities, a well creosoted piece of timber has never been known to rot or to be eaten by worms.

Our experience in this city in the use of preserved piles, compared with the experience of English engineers, gives us the two extremes in quantity of dead oil injected into the wood.

Bethell uses for piles from ten to twelve lbs per cubic foot.
Seely (at St. Clair Flats), uses four lbs per cubic foot.
Robins uses one lb per cubic foot.

In each case the oils are those distilled from coal tar, heated above the boiling point of water, and the greater portion of them of a specific gravity slightly exceeding that of water.

While we have no complete information as to the minimum quantity of oil that may be safely used to prevent the attacks of the marine worm, I believe it is generally conceded that it is unnecessary to pursue the treatment to the extent of saturating the timber, as in the Bethell process. The American engineers—actuated by that spirit of economy which distinguishes them from their English brothers—have investigated this branch of the subject with characteristic energy and ingenuity. Mr. Herman Haupt, in an article published in "Van Nostrand's Magazine" for May, eighteen hundred and seventy-two, says:

"It is well known that the very small portion of creosote in smoke will penetrate to the interior of a ham, and cure it. The soluble portions of wood are only four per cent of its weight. If, as high authorities assert, the five thousandth part of carbolic acid will prevent putrefaction of blood, fæces, glue solution, flour paste, and other substances liable to fermentation, the same proportion should protect the albuminous and soluble portions of wood. And if this be true, only the one hundred and twenty-five thousandth part of the weight of the wood would be required. This is less than the two hundred and fiftieth part of an ounce to a cubic foot, and more than this may be conveyed into paving blocks by the vapor process. While it seems probable that thorough saturation with oils, as in the Bethell process, is unnecessary, a much larger portion than the minimum required to prevent putrefaction would seem to be desirable."

In the same article, Mr. Haupt expresses an opinion adverse to the efficacy of the Robins process, on the ground that the moisture in the pores of the wood is not expelled by the treatment, and that the vapors of the oil cannot, therefore, penetrate to the interior of the timber. On the other hand, we have the testimony of Mr. Calvin Brown, that in the specimens examined by him, "the preserving materials had permeated the whole mass of the stick."

In eighteen hundred and seventy-one, desiring to test the thoroughness of the treatment, I obtained augur chips from a large number of piles which had been treated by the Robins process, and submitted them to Professor Carr, of the State University, for examination. The chips were separately taken, and duly labeled, at depths of one half an inch from the circumference to the center of the pile, and at various intervals between the two ends. The following letter gives the result of Professor Carr's examination:

UNIVERSITY OF CALIFORNIA,
Oakland, November 5th, 1871.

T. J. ARNOLD, ESQ.:

DEAR SIR: I have carefully examined the specimens of wood you sent me, which have been subjected to the Robins process, with the following result:

First—A large portion of the soluble nitrogenous (albuminous) matter has been removed, thus diminishing the natural tendency of the wood to decay, and facilitating the penetration of the vapors from coal tar.

Second—The coal tar vapors have penetrated from one to three and a half inches from the surface, their presence being decidedly indicated in some instances at the latter depth. The well known preservative character of these vapors, and the repugnance of that scourge of our harbors, the *teredo*, to them, indicate the value of the process, when faithfully conducted.

Respectfully yours,
EZRA S. CARR.

In some experiments recently made by me, I observed the following facts, which I have nowhere seen noticed in published works on the subject.

1. The oil penetrates the cellular tissue of the wood with great difficulty.
2. The fibrous portion of the wood takes it up readily.
3. Oil will penetrate sap wood *across* the grain, but heart wood receives it almost entirely in the direction of the grain. This fact is made very apparent by boiling wood in oil from two to three hours, and then plunging it into a bath of cold oil. It will be found that the oil has penetrated entirely through the sap and there stopped; the heart seeming to form an impassable barrier to its further progress.

When it is remembered that we use round timber, with the sap on, for piles, these facts may afford an explanation of the success of the Robins process as applied on this coast.

In eighteen hundred and sixty-nine, the Board of State Harbor Commissioners requested Colonel William J. Lewis, then the Engineer of the Board, to examine the subject of the preservation of wood, and in June of that year Colonel Lewis submitted an able report in favor of the Robins process as applied by the company managed by Mr. I. C. Woods. The Harbor Commissioners thereupon entered into a contract with Mr. Woods to preserve the piles, caps, stringers, and a portion of the planking used in the construction of the wharf along the bulkhead between Jackson and Pacific streets. More or less of preserved piles have been used in the construction of all wharves along the sea wall since eighteen hundred and sixty-nine, though in later built wharves none of the caps and stringers have been preserved. I have recently examined the piles in the wharf between Jackson and Pacific streets, by boring with an auger near the line of extreme low water. No worms were found in the preserved piles, but some unpreserved piles, in the same wharf, driven at the same time, nearly four years ago, were found to be worm eaten. The examination was not as thorough as could be wished, but it showed conclusively that the treatment has been a partial if not a complete protection against the attacks of the worm. I am not prepared to say that there are no worms in these piles, but the same tests applied to the preserved and unpreserved piles, failed to develop them in the one case and did develop them in the other.

Mr. Arthur Brown, Superintendent of Bridge Construction for the Central Pacific Railroad Company, informs me that he has lately taken up and thoroughly examined some piles which were treated by the Robins process, and driven at the company's wharf near the foot of Second street, two years ago. These piles were found to be perfectly sound and free from worms, while other piles which had not been treated, driven at the same time and place, were found to be worm eaten. Worms, however, were found in a piece of sawed timber which had been treated by the vapor process.

Some months ago, Captain Cox, of the Pacific Mail Steamship Company, also informed me that he had made some experiments for the purpose of testing the value of the Robins treatment. At that time the worms had not attacked the round timber, but he had found them in a piece of sawed timber which had been imperfectly preserved by the Robins process. It is worthy of note that the company has since used piles preserved by this process in an extensive addition which has lately been made to their wharf. I am also informed that the United States Engineers are using piles treated by this process at Mare Island, Lime Point, Fort Point, and Wilmington, and that the Central Pacific Railroad Company have recently had a large number of piles preserved in this manner.

The element of time, so essential to the determination of the value of any wood-preserving agent, is wanting in the case of the Robins process, but the results which have been obtained thus far, warrant the conclusion that it is economy and sound policy to treat by this process the piles and a portion, at least, of the superstructure of the wharves hereafter constructed. The price now paid by the Board for piles driven, capped, and bolted, approximates fifty cents per lineal foot; the extra cost of preserving is ten cents per lineal foot. We know from experience that fender piles, unpreserved, will not last over five years; we also know that preserved piles are not materially, if at all, injured after being driven nearly four years. Now, assuming that four years is the limit of protection afforded by the treatment, it is still evident that it is economy to preserve the piles by the vapor process.

In conclusion, I desire to say that while I am decidedly of the opinion that the vapor process, as practiced by Mr. Woods, is the best that can now be procured on this coast, I believe it would be advisable to inject a larger quantity of dead oil into the timber; and should any process or treatment be offered which would accomplish that object, I would recommend the Board to adopt it, even at a largely increased cost.

Respectfully submitted.

T. J. ARNOLD,
Engineer Sea Wall.

REPORT

OF

JOHN F. SWIFT, Esq., SPECIAL COUNSEL.

REPORT.

SAN FRANCISCO, July 1st, 1873.

To the Board of State Harbor Commissioners:

GENTLEMEN: At the time of my becoming counsel to the Board, viz: on the first day of April, eighteen hundred and seventy-three, my predecessor reported to me the condition of the then existing litigation, as follows:

In the case of the People, ex relation of the State Harbor Commissioners v. Klumpke, et al., the judgment of the Court below, in favor of plaintiffs, had been reversed by the Supreme Court, and a new trial ordered. But the remittitur had not been filed in the lower Court. The remittitur has been filed since, and the case placed upon the calendar, for trial in its order.

Three cases, each entitled James D. Walker v. the Board of State Harbor Commisioners, and numbered in their order respectively, number nine hundred and sixty-six, number nine hundred and sixty-seven, and number nine hundred and sixty-eight, had been brought in the Circuit Court of the United States, concerning certain lots of land, covered with water, claimed as held under Alcalde grant. One of them had been tried, and a decision rendered by said Court in favor of the Board and against said pretended titles.

From that decision an appeal had been taken to the United States Supreme Court, which is now pending, and will probably be reached at the October Term of the present year.

The other cases (number nine hundred and sixty-seven and number nine hundred and sixty-eight), stand in the Circuit Court to await the decision of the appellate Court in the first named case.

No preparation has been made for the argument of this case, and I would respectfully recommend that arrangments be made in that behalf as soon as possible.

The case of A. C. Webber v. the State Harbor Commissioners, in the Supreme Court of the United States, is likewise an appeal by the plaintiff, Webber, from a judgment in favor of the Board, rendered in the United States Circuit Court. That case, likewise, comes up at the October Term of the United States Supreme Court, and requires argument, to which I call your attention, and recommend that arrangements be made at once therefor.

Since I have been your counsel no new suits of importance have been instituted by the Board, and none whatever have been commenced against it.

The case of the Board of State Harbor Commissioners v. M. R. Roberts, now pending in the Third District Court, having been transferred from the Justices' Court of the City and County of San Francisco, was commenced to recover one hundred and fifty dollars for dockage of the bark Iconium. The defense relies upon the supposed illegality of the rates levied upon vessels occupying the slips between the wharves.

I count fully upon recovering judgment in due course of litigation, and collecting the sum charged.

Claims for wharfage against lumbermen, occupying portions of East street with lumber, have been placed in my hands, but as yet, I have only notified ~~-~~them that payment is demanded.

Unless otherwise ordered, suits will be commenced upon these claims at an early day.

JOHN F. SWIFT, Special Counsel.

FINANCIAL REPORT.

FINANCIAL REPORT.

RECEIPTS

From July first, eighteen hundred and seventy-one, to July first, eighteen hundred and seventy-three.

Front-street wharf	$34.575	61
Vallejo-street wharf	27,490	16
Pacific-street wharf	34,334	42
Jackson-street wharf	13,649	20
Washington-street wharf	12,716	01
Clay-street wharf	13,688	82
Commercial-street wharf	10,829	93
Market-street wharf	14,539	61
La Rue's wharf	14,793	25
Mission-street wharf	21,356	50
Howard-street wharf	18,395	57
East-street wharf (Mission to Howard)	12,569	73
East-street wharf (Market to Mission)	8,087	95
East-street wharf (Market to Pacific)	3,675	00
Folsom-street wharf	22,100	00
Spear and Bryant streets (Hathaway's)	17,167	41
Pacific Mail Steamship Company	21,250	00
Dry Dock (Union Lumber Association)	5,400	00
Main-street wharf	3,472	18
Steuart-street wharf	2,500	00
Broadway-street wharf	18,200	80
Vallejo-street water front (Davis to Front)	6,100	00
Battery street	3,400	00
North Point wharf	13,903	80
Alameda Ferry Company	1,770	50
Merchants' Dry Dock Company	1,800	00
Western Pacific Railroad Company	16,500	00
Second and Berry streets	3,700	00
Montgomery and Francisco streets	5,449	81
Davis street (portion of)	480	00
Carried forward	$383,896	26

RECEIPTS—Continued.

Brought forward	$383,896 26
Bay and Francisco streets	110 00
Fisherman's wharf	1,814 10
Oakland Ferry Company	278 75
Urgent repairs (received from attorney)	250 00
Legal expense (received from attorney)	12 50
Total revenue from wharves	$386,361 61
STATE WHARF AND DOCK FUND.	
Amount drawn by Commissioners, as per Orders Nos. 74 to 106, inclusive	134,584 63
Total	$520,946 24

DISBURSEMENTS.

From July first, eighteen hundred and seventy-one, to July first, eighteen hundred and seventy-three.

URGENT REPAIRS.	
Amount disbursed for repairs on various wharves, demanded by immediate necessity	$58,575 87
CLEANING WHARVES.	
Amount paid salaries of sweepers and hauling rubbish from wharves	20,625 50
DREDGING ACCOUNT.	
Amount paid for dredging, as per sundry contracts	86,237 60
EXPENSE ACCOUNT.	
Amount paid for rent of office, books and stationery, printing, advertising, etc	9,579 33
CURRENT EXPENSE OF WHARVES.	
Amount paid salaries of wharfingers and collectors	60,665 00
Carried forward	$235,683 30

DISBURSEMENTS—Continued.

Brought forward	$235,683 30
LEGAL COUNSEL.	
Amount paid salary of counsel of Board	6,000 00
SALARY ACCOUNT.	
Amount paid salaries of Commissioners and Secretaries	25,550 00
LEGAL EXPENSES.	
Amount paid expenses in connection with litigation	445 50
SEA WALL ACCOUNT.	
Amount paid salary of Engineer	8,000 00
CONSTRUCTION ACCOUNT.	
Amount paid for widening and repairing wharves under contract	48,347 03
HARBOR PROTECTION FUND.	
Amount remitted to State Treasurer	67,594 88
STATE WHARF AND DOCK FUND.	
Amount remitted to State Treasurer	129,325 53
Total disbursements	$520,946 24

RECAPITULATION.

The foregoing receipts are subdivided as follows:

Receipts for dockage, tolls, and wharfage	$273,584 11	
Leases made by the State	53,050 00	
Rent of wharves	59,465 00	
Urgent repairs account collected by attorney	250 00	
Legal expense account returned by attorney	12 50	$386,361 61
Balances in the several Funds at the time of the last biennial report were as follows:		
Harbor Protection Fund	$761 95	
State Wharf and Dock Fund	$69,030 05	$69,792 00
Remittances to State Treasurer during the term ending July 1st, 1873:		
For Harbor Protection Fund	67,594 88	
For State Wharf and Dock Fund	129,325 53	$196,920 41
		$266,712 41
Drafts on the State Controller during the term ending July 1st, 1873	$134,584 63	
Balance in the several Funds July 1st, 1873:		
Harbor Protection Fund	68,356 83	
State Wharf and Dock Fund	63,770 95	$266,712 41

In consequence of the receipts and expenditures for the month of June being included in the report, and the balance remitted to the State Treasurer ($9,518 44) necessarily delayed, a discrepancy in the amount named may be apparent in the report of the State Controller.

Respectfully submitted.

J. A. McCLELLAND,
Secretary.

RATES OF DOCKAGE, WHARFAGE AND TOLLS

FOR THE

PORT OF SAN FRANCISCO.

RATES OF DOCKAGE, WHARFAGE, AND TOLLS FOR THE PORT OF SAN FRANCISCO,

Established by the Board of State Harbor Commissioners, July first, eighteen hundred and seventy-three.

DOCKAGE.

Vessels under ten tons, per day, fifty cents.

Vessels of ten tons and under twenty-five tons, per day, seventy-five cents.

Vessels of twenty-five tons and under fifty tons, per day, one dollar and twenty-five cents.

Vessels of fifty tons and under seventy-five tons, per day, one dollar and fifty cents.

Vessels of seventy-five tons and under one hundred tons, per day, two dollars.

Vessels of one hundred tons and under one hundred and fifty tons, per day, three dollars.

Vessels of one hundred and fifty tons and under two hundred tons, per day, four dollars.

Vessels of two hundred tons and under two hundred and fifty tons, per day, five dollars.

Vessels of two hundred and fifty tons and under three hundred tons, per day, six dollars.

Vessels of three hundred tons and under four hundred tons, per day, seven dollars.

Vessels of four hundred tons and under five hundred tons, per day, eight dollars.

Vessels of five hundred tons and under six hundred tons, per day, eight dollars and fifty cents.

Vessels of six hundred tons and under seven hundred tons, per day, nine dollars and fifty cents.

Vessels of seven hundred tons and under eight hundred tons, per day, ten dollars and fifty cents.

Vessels of eight hundred tons and under nine hundred tons, per day, eleven dollars.

Vessels of nine hundred tons and under one thousand tons, per day, eleven dollars and fifty cents.

Vessels of one thousand tons and under eleven hundred tons, per day, twelve dollars and fifty cents.

Vessels of eleven hundred tons and under twelve hundred tons, per day, thirteen dollars and fifty cents.

Vessels of twelve hundred tons and under thirteen hundred tons, per day, fourteen dollars and fifty cents.

Vessels of thirteen hundred tons and under fourteen hundred tons, per day, fifteen dollars and fifty cents.

Vessels of fourteen hundred tons and under fifteen hundred tons, per day, sixteen dollars and fifty cents.

Vessels of fifteen hundred tons and under sixteen hundred tons, per day, seventeen dollars and fifty cents.

Vessels of sixteen hundred tons and under seventeen hundred tons, per day, eighteen dollars and fifty cents.

Vessels of seventeen hundred tons and under eighteen hundred tons, per day, nineteen dollars and fifty cents.

Vessels of eighteen hundred tons and under nineteen hundred tons, per day, twenty-one dollars.

Vessels of nineteen hundred tons and under two thousand tons, per day, twenty-two dollars and fifty cents.

Vessels of two thousand tons and under twenty-two hundred tons, per day, twenty-three dollars and fifty cents.

Vessels of twenty-two hundred tons and under twenty-five hundred tons, per day, twenty-five dollars.

Vessels of twenty-five hundred tons and over, in proportion.

Vessels loading and ballasting, half the above rates.

Vessels in outside berths or in the slips, shall pay half rates of dockage.

TOLLS.

Vehicles drawn by one or more animals, twelve and a half cents.

Loads, when in excess of two tons, six and a quarter cents additional for each ton or part thereof. Except grain, flour, potatoes, and other vegetables, when in excess of two tons, five cents additional for each ton or part thereof.

Loads of lumber, when hauled on the wharf, of two thousand feet or less, twelve and a half cents.

Loads, when in excess of two thousand feet, five cents additional for each one thousand feet, or part thereof.

Extra vehicles, twelve and a half cents.

Cattle or horses for transportation, five cents each.

Sheep or hogs, one and a half cents each.

Handcarts, five cents each.

WHARFAGE.

The following articles, when landed upon the wharf, and remaining for a period not exceeding forty-eight hours, shall pay wharfage as follows:

Wood, per cord, twelve and a half cents.

Lumber, per thousand feet, ten cents.

Stone, iron, and general merchandise, per ton, six and a quarter cents.

Bricks, per thousand, ten cents.

Coal and asphaltum, per ton, ten cents.

Hay, ten cents.

Any of the above articles remaining on the wharf more than forty-eight hours, shall pay the above rates of wharfage for each additional day, or fractional part thereof.

All goods landed upon the wharf, and taken from thence in lighters or other vessels, shall pay six and a quarter cents per ton wharfage.

All goods received or discharged by vessels lying alongside of the wharf or in slips, from or into lighters, or other vessels, shall pay five cents per ton wharfage, and lumber five cents per M.

RULES AND REGULATIONS.

Dockage to commence upon a vessel making fast to the wharf, and to conclude when she hauls out, and to pay for each day or fractional part thereof. No allowance to be made for Sundays, holidays, or rainy days.

Vessels shall rig in jib, flying jib, and spanker booms, when required by the Wharfinger, and shall also haul or change berths, at their own expense, by his direction.

No merchandise will be allowed to remain upon any wharf over night without permission of the Wharfinger, and then only at risk of the owner.

All goods remaining on the wharf after the owner or consignee has been notified to remove the same, will be removed by the Wharfinger at the expense of the owner.

All goods, wares, and merchandise shall be charged by weight or measurement, according to custom. Two thousand pounds shall constitute a ton, except coal, iron, and stone.

No load exceeding five tons shall be admitted on or off the wharves, except single packages. Driving on any wharf faster than a walk, prohibited.

Parties holding portions of the water front, under lease from the Board of State Harbor Commissioners, are obligated to charge and collect the above rates; and any person violating said rules will forfeit his lease.

BIENNIAL REPORT OF THE REGENTS

OF THE

UNIVERSITY OF CALIFORNIA,

FOR

THE YEARS 1872-73.

T. A. SPRINGER.........STATE PRINTER.

San Francisco, December 5th, 1873.

To His Excellency,
Governor Newton Booth:

Dear Sir: In compliance with law, and by instruction of the Board of Regents, I herewith transmit to you the Biennial Report of the Regents of the University of California, consisting of:

First—Report of President D. C. Gilman, with accompanying documents.

Second—Statement showing receipts and disbursements of the Regents of the University, from December first, eighteen hundred and seventy-one, to November first, eighteen hundred and seventy-three.

Third—Accounts audited against the University Building Fund up to November twentieth, eighteen hundred and seventy-three.

Fourth—Report of Land Agent upon the disposition of the grant of one hundred and fifty thousand acres made by Congress for the support of a College of Agriculture and the Mechanic Arts.

I am, very respectfully,

ANDREW J. MOULDER,
Secretary of the Regents of the University.

REPORT.

To the Board of Regents:

Gentlemen: The changes which have occurred in the University since its removal to the new buildings are so great, that I have expanded the "Report" made to you on the first of June last, of the progress of the University since my accession to office, so that it has become a "Statement of the condition of the University, December first, eighteen hundred and seventy-three." The financial affairs of the University and the work of the land office do not come within my official cognizance. I believe that the following papers, in the preparation of which I have been aided by the Dean and by other members of the Academic Senate, will present to the Legislature, if it seems to you desirable to report them, a full and exact account of the condition and needs of this institution. It seems to me that their publication will also quicken the interest of the people in the promotion of higher education, and will show how earnestly we are striving, with limited resources, to promote all the varied interests of this diversified and prosperous community.

Yours, respectfully,

D. C. GILMAN,
President.

University of California, Berkeley, (near Oakland),
December 1st, 1873.

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STATEMENT OF THE CONDITION

OF THE

UNIVERSITY OF CALIFORNIA,

DECEMBER 1st, 1873.

The University of California, established in eighteen hundred and sixty nine, has given up the use of the buildings temporarily occupied in the City of Oakland, and is now permanently fixed at Berkeley, a neighborhood in the Township of Oakland and County of Alameda. The commencement exercises were held here, July sixteenth, eighteen hundred and seventy-three, and the instruction of the classes began here on the twenty-fourth of September following.

DESCRIPTION OF THE SITE.

The University site at Berkeley is situated four miles to the north of the City Hall, in Oakland. It includes about two hundred acres of land, which lie on the western declivity of the Mount Diablo group of mountains, at an elevation varying from two hundred to eight hundred and eighty-seven feet upon the sea level. The bench mark of the south college building is three hundred feet above mean high water, and this is nearly the altitude of the principal spots selected for building. The property is traversed by two creeks, the larger one of which, on the south, is known by the name of Strawberry Creek. The surface is much diversified, and affords excellent locations for all the necessary buildings of the University, and for the cultivation of trees, shrubs, and other plants, as well as for experiments in agriculture and horticulture. Its natural beauties and its fine outlook toward the Bay of San Francisco and the Golden Gate, are already well known.

In an oration delivered by Hon. John B. Felton, the situation is thus described: "It would be risking little to say that nowhere in the world could a place be found more lovely or more exquisitely adapted to its purpose. Sheltered by the mountains from the winds of the ocean, the student will drink in health and strength from a climate more beautiful, and an air more pure than that which attracts to Italy the death-shunning invalid. Copious streams that shall hereafter be classic, descend from ravines in the mountains, and long lines of majestic trees stand like sentinels on the banks. At a short distance stretches the great harbor of San Francisco, whose broad breast can bear the navies of the world; and on its other side is that restless and agitated city, which, having known no infancy, but leaping into existence as Minerva sprang from the the brain of Jove, fully armed and matured, seems to crave the healthful and calming influence of a great University. In full view, towards the ocean, beyond where the Fort of Alcatraz points its threatening guns, the Golden Gate lies lapped in the glorious light that gave it its prophetic name. And the last glance of the future student of California, as he leaves his native shore—his first returning glance as he welcomes home—shall fall on the spires of his own Alma Mater."

Before this site was transferred to the State by the College of California, a survey of its features was made by Mr. Frederick Law Olmsted, now of New York, by whom a report was prepared on the uses to be made of the different parts of the ground. The plot which he prepared is not now to be found. The transfer of the property from the College to the University led to the abandonment of some of the plans which were then suggested and approved. When the site was first secured by the State, some preliminary roads and paths were laid out by Mr. ———, a gardener, now resident in San José.

In the Spring of eighteen hundred and seventy-three, the Regents requested Professor Davidson, of the United States Coast Survey, to cause a plane table survey of the grounds to be made. This was executed at once by Mr. Cleaveland Rochwell, of the United States Coast Survey.

The Gardener of the public grounds at the Capitol, Mr. Ellis, was also consulted, and a written report was received from him on the treatment of the grounds.

Subsequently, the Regents requested Mr. William Hammond Hall, the Engineer of the Golden Gate Park, to give them his advice and coöperation in the grading and development of the property. He has made a beginning in the immediate vicinity of the public buildings, and will go forward with the work as rapidly as the funds are provided.

A survey of the boundary lines of the University property is now in progress.

The classes in Civil Engineering have begun, also, an elaborate topographical map of the grounds, which will be the work of several years, and will give them good practice in the science and art to which they are devoted, and will be of constant service in the development of the property.

THE BUILDINGS.

The two new edifices, constructed by the liberality of the State, at Berkeley, are now occupied by the classes, and are found to be well adapted to the wants of the institution. They were designed by Mr. David Farquharson, Esq., Architect, of San Francisco, and one of the two was constructed under his immediate supervision. The other building was constructed under the direction of the Building Committee of the Regents, who made some changes in the original design. These structures are sufficient for the most pressing necessities of the University; but as the institution increases in the number of teachers and scholars, further accommodations will be necessary. Separate buildings for the Library and Museum will be among the earliest wants to be supplied. When Mr. Farquharson's plans were originally adopted, it was thought that separate buildings might be soon put up for the several Colleges of Agriculture, Mining, Mechanic Arts, Civil Engineering, Letters, etc., into which it was intended that the University should be subdivided; and, accordingly, the building first constructed bore the name of the College of Agriculture, and the second one the name of the College of Letters. For the present, however, the cost of such a variety of buildings has not been provided for. Moreover, the students in the various special subjects are united in so many different groups, that the separation of any part of them into one building exclusively, has been out of the question. The lectures on Geology and Natural History, and the work in Chemistry, for example, are requisite for all students, in the scientific branches, as much as for those in Agriculture; and so, likewise, many of the lectures in Agriculture may be attended by students of other departments.

Temporarily, also, until either public or private munificence provides a separate building or buildings for the Library and Museum, it has been thought best to place the very valuable collections of the University in the College of Agriculture, the only fire-proof structure on the premises.

In view of these considerations, the north or wooden building, originally called the College of Letters, is devoted, for the present, to rooms used as follows:

IN THE NORTH HALL OR COLLEGE OF LETTERS.

1. Large Assembly room.
2. Philosophical lecture room, with apparatus and room and study attached.
3. Two class rooms in Civil Engineering.
4. Two class rooms in History and English Literature.
5. General lecture room.
6. Three Mathematical class rooms.
7. Five class rooms in Ancient and Modern Languages.
8. Faculty rooms.
9. Study for the young men when not in recitations.
10. Study for the young ladies while not in recitations.

In the South Hall, or College of Agriculture, the rooms are assigned as follows:

1. Chemical laboratories, with their accessory store rooms, balance room, study, etc.
2. Lecture room for scientific lectures by the Professors assigned to this building.
3. Lecture rooms and work rooms of the Professor of Agriculture.
4. Temporary library and reading rooms.
5. Temporary museum rooms, for the collections of the State Geological Survey, and for other collections—agricultural, mineral, metallurgical, etc.

While these public buildings were constructing, the Regents expected to devote whatever sum might remain from the Building Fund to the erection of dwellings for the Professors. The site, which was considered as on the whole the most favorable, was the new gift of ten acres, received from Mr. Blake, and lying to the south of Strawberry Creek, between the horse-railroad and the road known as Shattuck street. Plans were drawn for houses, estimates of their cost procured, and bids received, when, after a careful scrutiny of the law by some of the lawyers in the Board, the Regents distrusted their right to go forward, and abandoned the project. Two of the Professors have constructed houses for themselves; the others still reside in Oakland, going to and from the institution daily.

No measures have been taken by the University to provide lodging houses or dormitories for the students; but as an accommodation in the emergency, about twenty of those most needing help have been provided with rooms on the University premises.

Arrangements are making for the equipment of the building with such models and diagrams as illustrate the various subjects taught in the University.

Besides these public buildings, there are several small wooden buildings upon the grounds, namely:

Three small dwelling houses, occupied by the Superintendent of Construction, and by the Janitor, and by a gardener.

Two shops; one for carpenter's work, and one for blacksmith's work.

A building lately used for the workmen, and now a students' club-room.

Another small building, occupied by two students.

A new shed for horses.

A house for the steam-heating apparatus.

Most of these structures are temporary, and of very slight value.

THE CHEMICAL LABORATORIES.

A large amount of space in the Agricultural College is devoted to the Chemical Laboratories.

On the first floor is the room for Quantitative Analysis. It is well lighted and furnished with every possible convenience for the work to be performed. It contains eight desks, each of which accommodates four students, thus making room for thirty-two students to work at one time. The desks are of black walnut, and each is supplied with the necessary water and gas fixtures, drawers, closets, etc. Every student has under his own charge a complete set of chemical reagents and apparatus, with which he performs all of his work. At one extremity of the room is the sand and water bath for the necessary evaporations and fusions. In this room also is the Chemical Cabinet, containing all of the known chemical salts, carefully labeled, and in full view of the students.

Recesses built in the walls in connection with flues, are employed instead of the usual cumbersome "hoods" for carrying off obnoxious gases. Leading out of this room from the right, is a large room for storing the supplies of chemicals for all three laboratories. Here also are placed the series of unknown substances which the students are to determine, a large and convenient "hood," wash sink, etc.

Leading from the left of the Quantitative Laboratory, is the private laboratory of the Professor of Chemistry. This also is furnished with black walnut desks similar to those in the large laboratory, and a long bench containing sink and pneumatic cistern.

In the basement, directly under the laboratory for Quantitative Analysis, is the laboratory for Qualitative Analysis. This is furnished exactly as the upper laboratory, with the exception that the desks are of cedar instead of black walnut. In a small room leading from the right, are arrangements for the preparation of sulphureted hydrogen, thus keeping the disagreeable odor completely out of the larger laboratory. Leading from the left of the Qualitative Laboratory, is a large sized room used by the Freshmen for performing experiments in Inorganic Chemistry. This laboratory is fitted up with plain, substantial desks of white cedar, around the sides, with drawers, and a long table in the center, giving ample room for twenty students to work without interfering with one another. An abundance of shelving gives room for apparatus and chemicals when not in use. Water pans for collecting gases are supplied, and the apparatus for each set of experiments is prepared in readiness for the students, so that they need not lose time in non-essential work. The light of the room is from the West, and the apartment is never too dark to work with comfort.

PHILOSOPHICAL APPARATUS.

The Cabinet of Physical and Mechanical Apparatus is very complete. Among other things it includes instruments for illustrating the Laws of Expansion of Solids, Liquids, and Gases; Laws of Conduction of Heat; Laws of Ebullition; Laws of the Elastic Force of Steam; Hygrometry; and Specific Heat.

For demonstrating the laws of *Radiant Heat:* Melloni's beautiful apparatus, with a delicate thermo-electric pile and galvanometer, and a complete set of the necessary appliances.

In MECHANICS: Various apparatus for studying the Laws of Motion, uniform and accelerated, including an automatic action Atwood's Machine; Composition and Resolution of Forces and Motions; Laws of Centrifugal Force; Laws of Center of Gravity; Laws of the several Mechanical Powers; Laws of Friction; Laws of the Pendulum. In MECHANICS OF LIQUIDS: Apparatus demonstrating the Transmission of Pressure, including the Hydrostatic Press, and the principles of Specific Gravity; apparatus for demonstrating the Laws of Spouting Liquids. In MECHANICS OF GASES: A fine air pump, with all the accompanying appliances, barometer, etc. In CAPILLARITY: Plateau's Apparatus, etc.

The ELECTRICAL APPARATUS is very complete, including a fine Holtz's machine, Conlomb's Torsion Balance, an Induction Coil giving a twelve-inch spark; Geissler's Tubes, and other electrical instruments. Also, apparatus for demonstrating the Laws of Magnetism, Electro-Magnatism, and Magneto-Electricity.

For UNDULATIONS AND WAVE-MOTION: Lyman's Apparatus for Water-Waves; Snell's apparatus for Sound-Waves; Powell's Apparatus for Light-Waves; and Young's for Interference of Waves. In SOUND: Organ Bellows and Pipes; Sonometer; Siren; Plates for Vibrations and Nodal Lines; Interference of Sound. In OPTICS: Apparatus for Demonstrating the Laws of Reflection and Refraction of Light; Laws of Dispersion; Diffraction and Polarization of Light; also Duboscq's Spectroscope and Duboscq's Electric Light Apparatus.

It is highly desirable that the Physical Apparatus should be supplemented by the addition of a number of *instruments of precision*, such as may be employed in original investigations.

THE MUSEUM.

The collections belonging to the University, though still incomplete, are, in many departments, both large and valuable. They consist of four distinct parts, viz: the *State Geological Survey Collection*, the *Mills-Voy Collection*, the *Pioche Collection*, and the *Ward Series of Casts*.

The Geological Survey Collection is still in San Francisco, but will be turned over to the University as soon as the museum cases are ready for its reception.

Prof. J. D. Whitney, the State Geologist, has furnished the following account of this valuable collection:

The State Geological collection comprises:

1. The collection of the State Geological Survey, comprising:

First—A full collection of rock specimens from all parts of the State.

Second—A large number of specimens, illustrating the mining resources of California.

Third—Specimens of the Minerals occurring in the State.

Fourth—A large and full collection of the fossils of California, both animal and vegetable. These have already been described, and figured in the Geological Report, with the exception of the fossil plants, which are now undergoing investigation at the hands of Mr. Lesguereux, and whose results are nearly ready for publication. There are in the State collection as follows: of Cretaceou species, two hundred and thirty-one; of Tertiary, one hundred and forty-eight; of living species, found fossil, one hundred and thirty-two, besides all that have been obtained from the older formations. There are also great numbers of duplicate specimens, valuable for exchange and for use in teaching.

Fifth—The Natural History collections, comprising forty-two species of mammals, two hundred and twenty-eight of birds, forty-five of reptiles, eighty-seven of fishes, and six hundred and fifty-two of mollusca.

Also, a large and full suite of Botanical specimens, which can be named authentically as soon as the volume of Botany of the Geological Report is ready.

A valuable portion of the Natural History collections was lost by the burning of the "Golden Gate" steamer, while on the way to the Smithsonian Institution to be examined and described.

A superb collection of the ores of California, comprised in fifty-nine large boxes, and made during the earlier years of the survey, was lost by the burning of the "Pacific Warehouse," in San Francisco. Much time and labor was devoted to the formation of this collection, and its loss very seriously impaired the value of the Geological Survey material.

2. Next in size and value to the State survey collection is the cabinet collected through the indefatigable industry of Mr. C. D. Voy, and presented to the University through the munificence of Mr. D. O. Mills.

This collection has been accessible to the University for several years, and its value is well known. It consists of nearly eight thousand specimens of rocks, minerals, ores, fossils, both animal and vegetable, human antiquities, and some living shells, nearly all from California. It contains very fine specimens of ores and minerals, but is especially rich in fossils and in relics of the prehistoric races of California. It is believed that, with the exception of the State survey collection, it is by far the largest and most valuable collection in the State.

3. *The Pioche Collection.*—This is a large miscellaneous collection of minerals, ores, shells, and curiosities of many kinds, presented to the University by the late Mr. Pioche. It is still in boxes, and has not been carefully examined, but is probably of very considerable value, especially in minerals and ores.

4. Selections from *Ward's Series of Casts.*—These casts are made from the most perfect specimens of fossils in the great museums of Europe and the United States. They are expressly intended and admirably adapted for teaching. For this purpose they are, in fact, almost indispensable, since the geological history of the earth is but imperfectly represented in California, and the originals of these great fossils cannot be obtained. The selection is by no means complete, but is as large as the limited means of the University at the time of purchase would allow.

THE LIBRARY.

The Library of the University contains (so far as can be estimated until some important cases are unpacked and arranged in their new cases) about eleven thousand volumes. This includes the following contributions:

1. The books received from the College of California.
2. A valuable collection of encyclopedias and dictionaries, and other reference works, presented by Mr. E. L. Goold, of San Francisco.
3. Books purchased by the Library Committee, to the amount of five thousand dollars.
4. The library of Mr. Pioche, chiefly consisting of works in modern French literature.
5. The library of Doctor Francis Lieber, presented by Mr. Michael Reese, numbering nearly three thousand volumes.
6. The gifts of numerous individuals, among whom Hon. J. W. Dwinelle, Mr. William G. Thompson, Mr. Peter Donahue, the California Representatives and Senators in Congress, Mr. S. F. Butterworth, and Mr. William Sharon, have given most generously.

An immediate outlay of five thousand dollars is required in order to supply the Professors with those books which they need in the prosecution of their researches and the daily instruction of their classes.

THE CHIEF DONATIONS SINCE SEPTEMBER, EIGHTEEN HUNDRED AND SEVENTY-TWO.

The indications are abundant that the people of the State, as individuals, are ready to help forward an institution of learning, which, through the Legislature of the State, they have established and endowed. Gifts of a large amount have already been made by men of wealth, and others are known to be in contemplation. A large number of smaller gifts, books, maps, minerals, fossils, plants, and pieces of apparatus have also been received, and the record of these donations—each one of which adds value to all the others—has been carefully kept, and is herewith submitted. Some of these donations deserve to be especially mentioned.

1. The late Edward Tompkins, a member of the Board of Regents, in September, eighteen hundred and seventy-two—a short time before his death—conveyed to the University a tract of land in Oakland, on the condition that so much of it should be sold as would yield a fund of fifty thousand dollars, for the support of a Professorship of Chinese and Japanese. His letter, conveying the gift, is appended to this report.

2. Another donation of land, comprising about ten acres, adjacent to the site of the University, has been formally deeded to the Regents by Mr. G. M. Blake, of Oakland, in accordance with an intention which he had before made known. This tract is a most desirable addition to the grounds, which are to be the permanent seat of the University.

3. The property of the *Toland Medical College*, including a commodious building, adapted to medical instruction, and the ground on which it stands—the gift of Dr. H. H. Toland—was unconditionally bestowed upon the University in March, eighteen hundred and seventy-three, by the special Board of Trustees, in whose name the property was held.

4. Mr. D. O. Mills, of San Francisco, having been informed that a very valuable collection of ores, fossils, and antiquities, brought together by the efforts of Mr. C. D. Voy, of Oakland, extended through many years, was offered for sale, immediately purchased the collection and presented it to the University. The price which was paid was five thousand dollars.

5. Three gentlemen of Oakland had previously promised to contribute something toward the purchase of this collection; upon learning of the generosity of Mr. Mills, they immediately directed their subscriptions to other University objects.

Mr. Charles W. Howard gave the sum of five hundred dollars, to be expended in the purchase of photographs, diagrams, engravings, etc., for the classical recitation room.

Mr. Henry D. Bacon gave the like amount for the purchase of models, diagrams, etc., illustrative of engineering studies.

Mr. William H. Raymond offered the sum of one thousand five hundred dollars for the purchase of some other collection, to be determined by the authorities of the University.

6. Mr. Michael Reese, of San Francisco, having been informed by one of his friends that the library of his countryman, Dr. Francis Lieber, the distinguished jurist, was for sale, immediately sent his check for the sum of two thousand dollars, to effect this purchase. The library has been received, but has not yet been opened. It contains from two thousand five hundred to three thousand volumes: in the division of history, biography, geography, and travels, about seven hundred and fifty volumes; in politics, law, political philosophy, and political ethics, about six hundred volumes; in general literature, language, and the classics, about nine hundred; dictionaries, encyclopedias, etc., about two hundred; besides a large number of pamphlets, bound and unbound, on prison discipline, crime and punishment, and other kindred subjects.

7. Several valuable pictures have been given to the University besides the Pioche bequest.

Mr. Frederick Billings, of Vermont, formerly President of the Trustees of the College of California, by whom the name of "Berkeley" was proposed for the University site, caused a portrait of Berkeley to be copied from Smybert's original portrait, in the gallery of Yale College, and presented it to the Regents when they took possession of the new domain at the Commencement of eighteen hundred and seventy-three. The copy was made by Professor John F. Weir, N. A. The whole expense, including the transportation, frame, etc., was borne by Mr. Billings. Mr. Weir, in a private letter, thus speaks of the portrait:

"Instead of making a literal copy, I have given a fac simile of the head in Smybert's picture, but discarded his awkward figure, which lacks anatomy and grace of correspondence with the head, and have made him as if reflecting on some passage from his favorite master, Plato—the book being held in both hands, one of which marks his reading. By this, we have both arms and both hands, and all corresponding with the action of the head, which is reflective. * * * The accessories I have also endeavored to make interesting and expressive. In the shadowed part of a pedestal, to the right (to be seen only when looked for), I have carved in his well known words: 'Westward the course of empire,' etc., as being most appropriate in connection with the destination of the portrait, since the 'course' has reached its almost limit; and its ripening demands are expressed most truly in the de facto existence of a University close under the setting sun—the extreme verge of the westward course—which renders the sentence prophetic and pointed. The background is landscape, probably the lawns at Derry. I inclose with this Mr. McWhorter's translation of the passage in Plato, which occasions the cogitations of the Bishop. Thus, you have the man, and his mind:

"'There was an island situate in front of the straits which you call the Pillars of Hercules. The island was larger than Lybia and Asia put together, and was the way to other islands, and from the islands you might pass to the whole of the opposite continent, which surrounded the true ocean; for this sea which is within the Straits of Hercules is only a harbor having a narrow entrance, but the other is the real sea, and the surrounding land may be most truly called a continent.'"—[*Timœus of Plato.*

Other portraits have been presented as follows:

8. A portrait of the Honorable Edward Tompkins, lately one of the Regents and the first founder of a professorship, painted by Mr. W. Cogswell, was purchased by the Regents.

A portrait of Professor Louis Agassiz, painted by Mr. W. Cogswell, when the distinguished naturalist was in California, was purchased for the University by the contributions of the gentlemen below named.

In the Summer of eighteen hundred and seventy-three the students of the University, through a committee of their number, requested Mr. Benoni Irwin, of San Francisco, to paint the portraits of Dr. Henry Durant, lately President of the University, and of his successor in office. These portraits were presented to the Regents through Governor Booth, on the evening of Commencement day.

Mr. J. L. Bardwell, of San Francisco, presented to the Medical College a portrait, believed by him to be an original of Fallopius, the well-known surgeon.

9. Mr. C. F. Watkins, photographer, of San Francisco, has presented to the University a collection of fifty large photographic views, which he has taken in different parts of California. The selection is made to illustrate the geology, vegetation, mining works, and other characteristics of the coast. The views are framed and will be distributed through different museums and lecture rooms.

10. Messrs. H. J. Booth & Co., of San Francisco, have presented a five-stamp quartz battery for the use of the Metallurgical Department.

11. Mr. Nolan, proprietor of a nursery in Oakland, has offered to the University, in the name of his daughter, any duplicate of plant, shrubs, etc., which may be in his extensive collections. Some of these have been already transplanted to the University site.

12. Several friends of the University have contributed the sum of five hundred dollars, to be expended in the purchase of a set of brass instruments for the military band which has been formed by the cadets.

13. A very valuable collection of bound newspapers, illustrative of the history of California, has been made by the liberality of several individuals.

Mr. S. F. Butterworth, one of the Regents, first gave a set of the New York *Daily Times*, from its beginning to the close of the war. Mr. William Sharon then presented sets of the San Francisco *Bulletin*, the Sacramento *Union*, and the San Francisco *Herald*. The publishers of the *Bulletin* and the *Union* kindly promised to continue the series of which they are the respective proprietors. Mr. James Anthony, of Sacramento, presented a set of the early series of the San Francisco *Chronicle*. Honorable C. Cole gave a bound volume of the *Republican*. The University previously owned a bound set of the *Alta California*.

14. Mr. Henry Edwards, of San Francisco, has presented a very extensive collection of Australian plants, identified and catalogued by Baron von Muller.

15. Mr. John H. Carmany, publisher of the *Overland Monthly*, San Francisco, has presented to the library the original manuscript and proof sheet of Bret Harte's poem, "The Heathen Chinee." It is handsomely mounted and framed.

16. Mr. Louis Janin, mining engineer, prior to his departure for Japan, presented a choice collection of mineral specimens, which he had brought together during the studies of several years.

17. A number of ladies in Oakland, through Mrs. Henry Durant, have given the sum of two hundred dollars to purchase an academic dress and chair for the President of the University.

18. Mr. C. K. Hawkes, of New York, has presented a complete set of the colonial records of Massachusetts and Plymouth, in sixteen quarto volumes. Mr. Justice Field, of the United States Supreme Court, has presented one hundred volumes, including the Annals of Congress. United States Senators Casserly, Sargent, and Cole, have been constantly mindful of the University library, and have all contributed to it important public documents.

19. The United States Coast Survey, through Professor Davidson, has presented a set of maps of the Pacific Coast; and the Geological Survey of California, through Professor Whitney, has supplied the library with copies of the reports and maps of the survey.

20. A citizen of Oakland has given the sum of one hundred dollars, to be devoted to the assistance of one or more needy students.

Numerous other contributions to the library and museum are mentioned in the appendix.

PROFESSORS AND THEIR DUTIES.

The instruction in the literary and scientific departments is given by the corps of teachers whose names and duties are stated in the register. The number of Professors giving their whole time to the University

is ten, including the President; there are two non-resident Professors, who have received no compensation, and have thus far given no instruction, but who are ready to coöperate with the other teachers during the coming year; there is one Assistant Professor, and there are seven instructors. Two of the assistants are graduates of the University, in the class of eighteen hundred and seventy-three. Three members of the Senior Class render additional services in the Chemical Laboratory. There has been one withdrawal from the faculty within the past year: Professor Samuel Jones, Professor of Military Science and Adjunct Professor of Mathematics, resigned his office in September, eighteen hundred and seventy-three, to become the President of the Maryland Agricultural College. The vacancy has been temporarily filled.

On the eighth of November, eighteen hundred and seventy-two, Dr. Henry Durant, who had been for two years President of the University, gave up that office, and his successor was inaugurated.

NUMBER OF STUDENTS.

The number of students enrolled in the Scientific and Literary Departments, is one hundred and ninety-nine. The following table shows the number during the past four years—since the organization of the University in September, eighteen hundred and sixty-nine. But one class was entered that year in the Scientific Department. Four classes were entered in the Literary Department, the upper three classes (small in number) having come from the College of California. In this table only the regular members of the College of Letters are assigned to the Literary Department. All the special students, including some who did not pursue scientific branches, are for convenience classed with the Scientific Department:

	Scientific and Special.	Literary.	Totals.	Number of Ladies.
1869–70........................	19	21	40	....
1870–71........................	51	28	79	17
1871–72........................	96	30	126	27
1872–73........................	141	44	185	38
1873–74	151	48	199	26

INSTRUCTION FOR YOUNG WOMEN.

Young women are received into the University on the same terms with young men, and have an equal share in all the advantages of the University. The table elsewhere given shows the number of those who have hitherto been enrolled as students. The majority of them have come for special courses; some attending but a single class, as in modern languages, botany, English literature, etc. The number of these special students has diminished since the removal of the University from Oakland. In eighteen hundred and seventy-two and seventy-three, there were eleven young women enrolled in the regular classes; this year there are eight, one of whom is in the Senior Class. In the Freshman Class of eighteen hundred and seventy-two and seventy-three, two young women made the highest record of scholarship for the year—they belonged to the College of Letters. All show a commendable zeal for study. Many of those who are in attendance prize the advantages of the University as superior to all others accessible to them, for the purposes which they have in view.

LECTURES AT THE MECHANICS' INSTITUTE, SAN FRANCISCO.

The usual courses of lectures at the Mechanics' Institute, in San Francisco, were delivered last Winter, to a large audience. The programme was as follows:

President Gilman.

January 4th—Polytechnic Schools at Home and Abroad.
January 11th—The Physical Geography of the United States in relation to its History.

Professor John LeConte.

January 18th and 25th—The Distances and Activities of the Stars.

Professor Carr.

February 1st—What we Breathe.
February 8th—What we Drink and What we Eat.

Professor Welcker.

February 15th—History of Mathematical Science.

Professor Joseph LeConte.

February 22d and March 1st—The Ancient Glaciers of the Sierras.

Professor Kellogg.

March 8th—Homer, and the True Homeric Poems.

Professor Rising.

March 15th—The Physical and Chemical Properties of Water.

Professor Swinton.

March 22d—Books, and the Use of Books.

A similar course of lectures was also given at the Normal School in San José, and several of the Professors also lectured in other parts of the State.

THE GRADUATION EXERCISES, JULY SIXTEENTH, EIGHTEEN HUNDRED AND SEVENTY-THREE.

At the Commencement of eighteen hundred and seventy-three, four years from the formal opening of the University, twelve young men were graduated.

On the day before their graduation, these candidates publicly presented the theses or essays which they had prepared in evidence of their capacity to investigate important subjects.

The names of these young men, the special departments to which they belong, and the subject of their graduating — these are indicated in the following scheme:

CLASS OF EIGHTEEN HUNDRED AND SEVENTY-THREE.

Graduating theses, publicly presented, July fifteenth, in Brayton Hall, at four P. M.

BY CANDIDATES FOR THE DEGREE OF BACHELOR OF ARTS.

NATHAN NEWMARK, San Francisco, on "The Vigilance Committee."
FRANK OTIS, San Francisco, on "Placer Mining in California."
JACOB REINSTEIN, San Francisco, on "The Commercial Policy of the United States."
EBENEZER SCOTT, San Francisco, on "Boiler Explosions."
CLARENCE J. WETMORE, Oakland, on "The Novel."

BY CANDIDATES FOR THE DEGREE OF BACHELOR OF PHILOSOPHY.

GEORGE J. AINSWORTH (Engineering), Portland, Oregon, on "Possible Improvements in Railroad Construction"
JOHN M. BOLTON (Agriculture), San Francisco, on "The Reclamation of Marsh and Swamp Lands."
JAMES H. BUDD (Agriculture), Stockton, on "Irrigation."
GEORGE C. EDWARDS (Engineering), Visalia, on "Practical Applications of the Parabola."
LEANDER L. HAWKINS (Engineering), Oakland, on "The Metric System."
FRANKLIN RHODA (Agriculture), Fruit Vale, on "Cherry Culture in California."
EBENEZER SCOTT (Engineering), San Francisco, on "Boiler Explosions."
THOMAS P. WOODWARD (Agriculture), San Francisco, on "Forestry."

On the sixteenth of July, the Commencement exercises were held in the assembly room of the College of Letters. After a prayer by Rev. S. H. Willey, Vice President of the College of California, a Latin salutatory address was made by Frank Otis, of the graduating class, and an English oration was delivered by Nathan Newmark, of the same class. In conferring the degrees, the President of the University delivered an addresss; and this was followed by a congratulatory address by his Excellency, Governor Booth, President of the Board of Regents. The exercises were concluded by the presentation of a portrait of Berkeley, the gift of Hon. Frederick Billings. An address commemorative of Berkeley, written by Right Reverend Bishop Kip, was read, in his absence, by Rev. Dr. H. D. Lathrop. A social reception was given in the evening to the graduating class and their friends. These addresses are given in the Appendix.

SCHOLARSHIPS, PRIZES, AND HONORS.

In eighteen hundred and seventy the Legislature established five scholarships, of the value of three hundred dollars a year, which were competed for by members of the entering Freshman Class. The five successful competitors are members of the present Senior Class

In eighteen hundred and seventy-two the Legislature passed an Act providing that when the former scholarships had lapsed, four competitive scholarships should be established, continuing four years each—one to be awarded each year to some member of the entering class; the value of each scholarship was to be three hundred dollars a year.

In consequence of the adoption of the Codes, these provisions became void. It is urgently recommended that the Legislature restore the scholarships provided for by the enactment of eighteen hundred and seventy-two.

HONORS AND PRIZES.

Honorable mention is made of those who pass the best examination on their admission to the Freshman Class.

The students making the best record for the term receive honorable mention in the public assembly. Those who make the best record for the year will be designated in the Annual Register.

Special honors are also awarded to the most successful in the Class Competitive Examination—not more than five in each of the four classes. The highest competitor of the Senior Class receives the University Medal, or an equivalent sum of money.

Commencement honors will be assigned at the discretion of the Faculty.

In addition to the scholarships which may be provided for, and the medal or its equivalent, a small sum of money has been pledged for prizes in some of the departments of scholarship.

A special prize of fifty dollars will be given this year, by the President, to the student who shall write and deliver the best English oration, under such regulations as the Faculty may prescribe. A special prize of fifty dollars will be given by the Professor of Chemistry to the student who shows the most proficiency in that science.

The friends of the University are earnestly requested to establish prizes and scholarships, to stimulate the departments in which they take the deepest interest.

MANUAL LABOR, AND THE EMPLOYMENT OF STUDENTS.

The law of the State requires that a system of moderate manual labor must be established in connection with the Agricultural College, upon its agricultural and ornamental grounds, for practical education in agriculture and landscape gardening.

In accordance with this requirement, as soon as the instructions were begun at Berkeley, opportunity was given to those students who desired it, for working upon the grounds, especially in connection with the grading, which was to be begun in the neighborhood of the public buildings. Fifty-one of the students were thus employed during their leisure hours. The Superintendent, Mr. Duncan, was instructed to pay them exactly what their labor was worth.

Other students have been employed to sweep and take care of the buildings, and as assistants in various departments, thus enabling them, in part, at least, to pay their own way. One or two, who are practical engineers, will have charge of the steam heating apparatus. Another student will be employed in the Library, as heretofore.

The establishment of a telegraphic office by the Western Union Telegraph Company affords opportunity, for all who wish it, to become familiar with the art of telegraphy.

It is proposed to open a printing office, in which those who are proficient in this art, may earn something, and may also promote the convenience and economy of the University by printing such blanks, notices, reports, etc., as may be required. The Professor of English, in case such an office is established, will make it of immediate service in the carrying forward his instructions. The want of money alone delays the opening of the office.

MILITARY INSTRUCTION.

The following statement has been prepared by Professor Jones, lately the Commandant of Cadets:

The time allotted for instruction in this department is two hours per week, viz: from one to two o'clock on Mondays and Fridays. The students are organized into a battalion of four companies. They have been practically instructed in the schools of the soldier, the company, the battalion, and as skirmishers, according to the system of Infantry Tactics at present in use in the United States Army.

During the Winter term, a thorough course of lectures was given on the organization and composition of armies; their government and supplies in quarters and in the field; marches and operations in time of war, both when in the enemy's country and when at home; offensive and defensive warfare; the theory of artillery fire; the construction and use of defensive field works and military bridges, and the principles of strategy.

The military feature of the University is important and beneficial in many respects. In the event of war it has been invariably found that previous military instruction and training has been of great service to the State, and especially advantageous to those who have received it. As conducted in this University, it does not interfere with instruction in the literary and scientific departments The drill affords a healthful exercise, and contributes to physical development, and gives additional grace of carriage and general bearing. The discipline, whilst it is not so rigid as to be irksome, induces a respectful and courteous bearing. It promotes good order and decorum in the daily routine about the University buildings, and its advantages are especially seen on all occasions when the students are required to move in a body; and it contributes largely towards the cultivation of a proper *esprit de corps*. It may, besides, when the University is established at Berkeley, afford a ready and efficient means for maintaining such order and discipline as may be necessary for the general protection of the public buildings and grounds.

Some objection has been made to the military organization, on the ground of the expense attending the purchase of uniforms. The objection is without force. Even if true, that it necessarily involves some slight additional expense of dress, it is an expense which may well be borne, seeing that it is the only additional expense, save board and text books, incident to University life, since the tuition is gratuitous. But it is believed that so far from being more expensive, a suitable uniform may be provided at less than the average cost of other clothing, and which will be much neater and more becoming. The wearing of a distinctive dress acts, too, as a healthful restraint on the wearer on many occasions, deterring him from objectionable or disreputable places and conduct. The way of providing a dress such as is here indicated, will readily suggest itself.

COURSES OF INSTRUCTION IN SCIENCE AND LETTERS.

The Legislature, in establishing the University, contemplated the foundation of distinct courses of study in Science and its application to Agriculture, the Mechanic Arts, Mining, Civil Engineering, and also in Literature, including History and Philosophy.

These courses have been commonly spoken of as "colleges," though they blend together, of necessity, in so many studies, that it is very difficult, and without enormous expense, quite impossible to maintain each separate course as a separate college system. Every facility consistent with the organization of the institution, is given for pursuing special branches, and also for laying a liberal foundation for future intellectual needs.

The Scientific and Literary courses or colleges of the University, should include, when the organization is completed:

SCIENTIFIC COURSES,

As follows:

1. In Agriculture.
2. Mechanics and Physics.
3. Civil Engineering.
4. Mining and Metallurgy.
5. Chemistry.
6. Studies introductory to Medicine.
7. Select Scientific Studies.

LITERARY COURSES,

As follows:

8. In Ancient Languages, History, etc.
9. Modern Languages, History, etc.

The beginning has been made of instruction in all the specialties above mentioned, but for lack of the requisite amount of instructors some of the courses are much less perfectly developed than others. A large increase in the staff of instructors is needed in order to give the highest efficiency to any of the specialties. Every scholar is free to select the course which he will pursue, from among the courses above enumerated, but change from one course to another cannot be made without the consent of the Faculty, and for special reasons; and when the course is once selected, it is expected that all the studies which it includes will receive attention from the student. All the literary students receive some instruction in science, and all the scientific students some literary culture.

A full course extends through four years. Special students, properly qualified, are, however, admitted to shorter or partial courses.

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SCIENTIFIC DEPARTMENT.

In the scientific department there are certain general studies pursued alike by all the students, such as mathematics, physics, elementary chemistry, English, French, and German, etc. So far as the time permits, the general studies are taken up in the first two years of the course; the special studies receive much more attention during the last two years. The specialties for which the most has been thus far provided are Agriculture, Engineering, and Chemistry, in each of which branches there is a special Professor. It is very desirable that there should also be special Professors of Mining and of Mechanical Engineering.

Students may be admitted at the beginning of either the first, second, or third year of the course. Except in peculiar cases, they are not advised to apply for admission at a point later than the beginning of the third year. Students who are not candidates for a degree, and desire to avail themselves only of certain special instructions, will not be required to pass a formal preliminary examination, but only to satisfy their instructors of their fitness for the proposed work. Students who are candidates for the degree must pass the examination for entrance, and also must be examined in the previous studies of the class they desire to join.

In the first or second year, French or German will be studied: *English, Rhetoric, and History*; *Mathematics*, (including Higher Algebra, Geometry, Analytical Geometry, Descriptive Geometry, and Surveying), the elements of Chemistry, Physics, Zoölogy and Botany, and Drawing.

In the third and fourth years, German will be studied, French and English continued. Geology will be taught to all the sections, and Spanish and Italian will be optional. Political Economy, Social Science, History and Ethics, will also receive attention.

AGRICULTURE.

The special studies in the Agricultural Course include, in the Junior year, the chemical composition of agricultural plants; the plant as an organism adapted to perform a certain work; the material when wrought; the forces by which the work is accomplished; the relation of the plant to the atmosphere (agricultural meteorology) and to the soil; the nature, origin, and composition of the soil.

There will be special instruction in this and the following year on veterinary science, diseases of plants, agricultural entomology, pruning and propagation, viniculture and wine making, dairy economy, farm implements and farm management, fish culture, etc.

The Senior studies will include tillage, irrigation, drainage, reclamation of land, field crops, sheep and cattle husbandry, forestry and arboriculture, sericulture, fruit, and other special cultures, household and rural economies; together with a part of the lectures mentioned under the preceding year.

The instruction is given by experimental and illustrated lectures, recitations, essays, and class discussions, and in the practical application of principles upon the University grounds. In addition, orchards, vineyards, farms, dairies, and all places of agricultural interest and importance, will be visited by the class, as far as practicable, under the guidance and instruction of the Agricultural Professor.

The University domain is being developed, with a view to illustrate the ability of the State for special cultures, whether of forests, fruits, or field crops, and the most economical methods of production. It will be the station where new plants and processes will be tested, and the results made known to the public. It is intended to employ the labor of students, with reasonable compensation therefor, whenever practicable.

Young men who do not desire to take a full course may attend particular exercises.

It should be borne in mind that the students of Agriculture have all the opportunities which the chemical laboratory affords, and that they attend the lectures on Geology, Botany, Natural History, Physics, Mechanics, etc.

CIVIL ENGINEERING.

The course in Civil Engineering is so arranged as to meet the wants both of those who wish for a four years' course (including other scientific and literary studies, and leading to the degree of Bachelor of Philosophy), and also of those who wish merely to pursue special studies in Engineering. Arrangements are likewise made for the advanced instruction of graduates of this and other institutions, who may, if they desire it, become candidates for the degree of Civil Engineer (C. E.)

For the four years' course, the requirements are fully stated in the *University Register*, where the mathematical, scientific, and literary studies of the entire course are also enumerated. Students who pursue this course (which is recommended to all who can take the time), begin their Engineering studies in the third or junior year.

Special students of Engineering must satisfy the Professors that they are familiar with Algebra, Plane and Solid Geometry, Plane and Analytical Trigonometry, Spherical Geometry and Trigonometry, and Analytical Geometry and Descriptive Geometry, which are the mathematical studies pursued in the earlier part of the four years' course, and are essential to higher studies.

The special engineering studies begin with the Surveying Course, which can also be taken by those persons not desirous of other instruction in Engineering, provided they are familiar with the before mentioned mathematics, not including Analytical Geometry, nor Descriptive Geometry.

The course includes Land Surveying, with chain alone, with compass, theodolite, solar compass, and plane table; Leveling, Topographical Surveying, Hydrography, Road and Railroad Surveying. Simultaneously, the study of Differential and Integral Calculus is pursued.

The theoretical instruction of the class-room is continually supplemented by practical exercises, surveys, etc., in the field, and by excursions for making itineraries, sketches, and general views of sections of the country, etc.

In the following year the properties and strength of building materials

are discussed and investigated. Stone-cutting, Isometrical Projections and Working Drawings for constructions of masonry are included; and this is followed by instruction in Framing and Bridge Building, and in the Mechanics of Engineering.

The plotting of and working up of the field notes, surveys, etc., made during the practical exercises of the year, will be completed in connection with the other instruction of this department.

Advanced students take up the subjects of geodetic and hydrographic surveys, with construction of maps of extensive tracts of country; river, lake, and harbor improvements; drainage of cities and districts; analyses and discussions of the most remarkable engineering constructions; original plans and estimates, and solution of practical problems.

In addition to the Professors at Berkeley, Professor George Davidson, Chief of the United States Coast Survey on the Pacific, will instruct the advanced students in the methods and instruments employed by the United States Coast Survey, in the determination of Longitude by Telegraph, and in certain Astronomical Problems.

Mr. Wm. Hammond Hall, Engineer of the Golden Gate Park, San Francisco, will illustrate in the office and in the field some of the principles and methods of Landscape Engineering.

Mr. James D. Hague, Mining Engineer, will instruct the class in the methods of Mining Engineering, as shown in the mining works of the Comstock lode, as described by him for the United States Government in the "Mining Industry of the Fortieth Parallel."

Prof. Charles F. Hoffman, Topographical Engineer of the State Geological Survey, will explain to the class the topographical work of the California Survey.

Illustrative models, diagrams, etc., are employed to facilitate instruction, and the course will be made as practical as possible by the investigation of hypothetical cases, the solution of original problems, and by excursions to prominent engineering structures within reach, such as the Navy Yard, public buildings, the dry dock, forts in the harbor of San Francisco, etc.

A special prize of fifty dollars will be given by the Professor of this department to that member of the senior class who is most proficient in the engineering studies of the year, ending with the Summer term of eighteen hundred and seventy-four.

Large and convenient rooms are provided for the Engineering Classes in the North College. A commencement has been made of a collection of Maps, Charts, and Diagrams, including the Maps of the United States Coast Survey, the Geological Survey of California, etc. By the liberality of H. D. Bacon, Esq., of Oakland, the sum of five hundred dollars, elsewhere acknowledged, has been provided for the purchase of models and apparatus for this department.

CHEMISTRY.

Instruction is given in general and theoretical chemistry by lectures, recitations, and laboratory practice. This course extends through three terms; one in Freshman year, and two in Sophomore year; and embraces the elements of inorganic and organic chemistry. Students, after making themselves familiar with the details of experiments, are required to repeat the same in the laboratory for elementary chemistry.

An advanced course of lectures will be given to students of the Junior and Senior Classes in general and theoretical chemistry. This course will embrace a discussion of the general principles of the science and their application to analytical and metallurgical chemistry, and to mineralogy.

The chemical laboratories will be open daily for instruction in analytical chemistry.

The course of instruction in qualitative analysis will include the analysis of simple and complex substances in the wet way, their analysis by the use of the blow-pipe and flame reactions, and the determination of minerals with the blow-pipe. Students will be required to keep a careful record of their work, and to submit the same to the inspection of the Professor. Upon passing a satisfactory examination in qualitative analysis, students may pass to the quantitative laboratory.

In the quantitative laboratory, instruction will be given in the quantitative gravimetric analysis of simple and complex salts, minerals, ashes of plants, mineral waters, etc.; in volumetric analysis, including acidimetry, alkolimetry, chlorimetry, etc.; in organic analysis; in gas analysis; in the preparation from inorganic and organic compounds, and in the carrying out of original investigations.

Students taking the course of chemistry will be expected to spend at least fifteen hours a week in the laboratory during Junior year, and twenty hours a week during Senior year.

Students who, for satisfactory reasons, do not wish to take the full course, may enroll themselves with the Professor of Chemistry as special students. Students wishing to take a post-graduate course will find an abundant opportunity for pursuing their studies.

Every opportunity possible will be made use of to give instruction in those branches of chemistry which have a practical application to the arts.

A room for the study of photography in connection with the chemical laboratory, will be opened as soon as the necessary apparatus can be supplied.

Practical instruction in electro-metallurgy will be given to such students as desire it.

So far as practical, students will be employed in the preparation of chemicals used in the laboratories; the object being to give them as much practice in manufacturing chemistry as is possible.

Special training in the analysis of mineral waters will be given to such of the advanced students in chemistry as may desire it.

Careful lists of waste products, minerals, etc., which may be utilized, will be kept, and students instructed in methods of saving them.

[B]

LITERARY DEPARTMENT.

Classical Course.

This course corresponds, in general, with the classical course of leading Eastern colleges. It continues through the four years of undergraduate study. In Freshman year, Latin and Greek are made especially prominent, occupying more than one half of the student's time. In Sophomore year, they make room for a modern language, and for courses of scientific lectures, and claim less than one half the time. In Junior and Senior years, they share the time with a still larger number of studies.

The students of the classical course take also a thorough course in mathematics; study French and German two years each; pay special attention to the English language; attend the general scientific lectures; and receive instruction in the higher literary, historical, political, mental, and ethical studies.

The degree attained, after passing satisfactory examinations, is that of A. B., the traditional degree attaching to the old classical course.

Modern Course.

Students desirous of receiving a literary rather than a scientific training, and who do not wish to pursue the classical course, may follow the instructions in French, German, and English; and, if their time allows, those of Spanish and Italian also. They will receive instruction in history, political economy, and in the mathematics of the earlier part of the course, philosophy, etc. They will be expected either to come to the University with so much knowledge of Latin as is required in the Freshman class, or to acquire a knowledge of Latin the first two years of their residence. Some knowledge of Greek will be of advantage to those pursuing this course, but will not at present be required. The degree for the course is P. H. B.

MEDICAL DEPARTMENT.

At a meeting of the Board of Regents, held March fourth, eighteen hundred and seventy-three, the unconditional transfer of the Toland Medical College to the Regents was effected. This is a generous gift of property, valued at seventy-five thousand dollars, to the University, with the simple understanding that it is to be devoted to medical instruction. The transfer is made in the name of, and by the assent of the original donor, Dr. H. H. Toland, of San Francisco, whose name is thus enrolled among the generous benefactors of education.

The following papers record this transaction:

The property, real and movable, is unincumbered, and consists of a large and commodious medical college, on Stockton street, one hundred and thirty-seven and a half feet by forty-two and a half feet, with the ground upon which it stands; an adjacent lot of fifty-seven and a half feet by eighty feet, on Chestnut street, with a brick building upon it; and a fair beginning of a library and museum, with the collections of materia medica, plates and diagrams, philosophical and chemical apparatus, and other helps to medical instruction.

The liberality of Dr. Toland, in so generously endowing a school of medicine, is without a parallel in the history of medical education in this country; and the unconditioned transfer of such a gift, with the donor's approbation, from the special Board of Trustees to the Regents, is a most gratifying token of confidence in the future of the State University, and inaugurates a medical department, in accordance with the expectations of the State, expressed in the organic act creating this University.

Letter from the Dean of the Toland Medical College.

DEAN'S OFFICE, SAN FRANCISCO, March 4th, 1873.

To the President of the University of California:

DEAR SIR: I herewith inclose a communication from the Board of Trustees of Toland Medical College, which you will be good enough to present to the Board of Regents of the University of California, and with it my assurance that the chief donor, Dr. H. H. Toland, has expressed to me, in writing, his cordial assent to this action of the Board of Trustees.

In addition to the real property, the gift will include all and every description of property, such as books, preparations, models, instruments, and other apparatus belonging to the College.

With respect, yours, etc.,

R. BEVERLY COLE, Dean.

Letter from the Secretary of the Trustees of the College.

SAN FRANCISCO, March 3d, 1873.

To the Board of Regents of the University of California:

I am authorized to inform you, that at a meeting of the Trustees of the Toland Medical College, held this day, it was voted, with entire unanimity, and with the hearty concurrence of the Faculty, including Dr. Toland, the founder, that the President and Secretary be authorized, on behalf of the Board, to make a due and legal conveyance of all the property of the College to the Regents of the University.

The proper conveyance will be executed and delivered on our receiving from you an intimation of your acceptance of the trust.

Hoping that the prosperity of the University in one of its legitimate departments, as well as the cause of sound medical education, may be promoted by the proposed transfer, I have the honor to be,

Very respectfully, your obedient servant,

IRA P. RANKIN, Secretary.

The Board of Regents unanimously adopted the following resolutions:

Resolved, That the Board of Regents have heard with satisfaction the proposal to transfer the property of the Toland Medical College to the University of the State, and that they accept with readiness this unconditional gift.

Resolved, That a committee be appointed by the Chair to receive the formal transfer of this property, and that said committee be requested to report to the Board, at the next meeting, a plan for the promotion of medical instruction in the University.

(Under this resolution, the Governor appointed as a committee Messrs. S. F. Butterworth, H. H. Haight, and A. S. Hallidie.)

Resolved, That the Board hereby record their grateful appreciation of the praiseworthy munificence of Dr. H. H. Toland, of San Francisco, in his liberal endowment of a school of medicine, and that they receive the gift which is made in his name, with the belief that by it the University will be enabled, in an efficient manner, to maintain the Department of Medicine.

At subsequent meetings of the Regents, the preliminary organization of the department was effected, and a committee was appointed to consider and report to the Regents a plan of permanent organization. That committee has not yet reported.

A Commencement of the Medical Department was held November eighteenth, eighteen hundred and seventy-three, at which eight young men were admitted to the degree of Doctor of Medicine.

THE IMMEDIATE NECESSITIES OF THE UNIVERSITY.

In order to carry out the requirements of the Legislature, and maintain with the efficiency of other institutions, the instruction which has been promised, and which the people of the State are eager to secure for their children, an immediate increase must be made in the staff of Professors. There are now but ten Professors who give their time to the University, including the President, and not including the assistants; and they are expected to cover the same branches of instruction which are elsewhere assigned to two or three times as many teachers. The consequence is that many important subjects are taught only in the most general or elementary way.

A few examples may illustrate these needs. This great mining State should maintain, at once, a school or College of Mines as a part of its State University. The law requires that this shall be done. The laboratories are good; the collections of minerals, ores, etc., are large and increasing; there are Professors of Geology and Chemistry; but there is no Professor of Mining, Engineering, Metallurgy, or Mineralogy. Two or three persons should be immediately engaged to teach these branches.

A fine estate has been provided for the University, well adapted to the establishment of an experimental station in Agriculture, a Botanic Garden, an Arboretum, etc. A Professor of Agriculture has been appointed, and the students in this branch are instructed in Natural Philosophy, Chemistry, and the elements of Natural History. But there should also be a Professor whose province it is to teach the Laws of Vegetation—all that pertains to the growth and structure of plants, or Botany, in its scientific and economic aspects; and there should also be a competent gardener (and, perhaps, a forester) employed at once to take charge of the grounds and cultivate the plants which may be acquired by gift or purchase. Still further help will be required if a farm is to be maintained.

In like manner there should be a Professor of Zoölogy, or of Comparative Anatomy and Physiology, who should study the structure and habits of animals, and especially of those which are useful or injurious to man. Much service would be rendered to the State by the acquisition and diffusion of knowledge in respect to the domestic animals, the fisheries, the insects injurious to vegetation, and other subjects on which a Professor of Zoölogy would give instruction.

It is generally admitted that, at an early day, increased attention will be given to manufactures in California. Already the number of persons engaged in the mechanic arts is very great, and the number of young men who desire to be trained as mechanical engineers is also great. The instruction in industrial mechanics is now assigned to the Professor of Physics, which is, in itself, one of the most difficult and progressive departments of science, requiring all the energy and time of the teacher. Industrial Mechanics, or Mechanical Engineering, should be made at once an independent Professorship.

The literary Professorships, likewise, require subdividing; especially as the number of scholars increases and the effort is made to meet their various requirements.

In the opinion of the Faculty, and of the Regents, the efficiency of the University demands at once the employment of not less than six additional teachers, and a still greater force will be indispensable at an early day. If California desires to provide for her youth as good an education as can be given at the East, liberal provision must be made to secure a large number of able, energetic, and learned teachers, skilled in their own special branches, and, likewise, skilled in the art of awakening the mind and imparting knowledge.

During the coming year, in addition to the existing staff, provision should be made for the employment of instructors in the following branches:

1. Mining Engineering.
2. Mineralogy and Metallurgy.
3. Systematic and Economic Botany.
4. Zoölogy.
5. Industrial Mechanics.
6. An additional literary instructor.

The Museum, the Library, and the Grounds, will also require curators or custodians.

[C]

REGENTS.

EX OFFICIO REGENTS.

His Excellency NEWTON BOOTH, *Governor, ex officio President of the Board.*
His Honor ROMUALDO PACHECO, *Lieutenant Governor.*
Hon. THOMAS B. SHANNON, *Speaker of the Assembly.*
Hon. HENRY N. BOLANDER, *State Superintendent of Public Instruction.*
R. S. CAREY, Esq., *President of the State Agricultural Society.*
A. S. HALLIDIE, Esq., *President of the Mechanics' Institute of San Francisco.*

APPOINTED REGENTS.

Hon. RICHARD P. HAMMOND, San Francisco.
Hon. JOHN W. DWINELLE, LL. D., Oakland.
Rev. H. STEBBINS, D. D., San Francisco.
Hon. LAWRENCE ARCHER, San José.
J. WEST MARTIN, Esq., Oakland.
Hon. SAMUEL B. McKEE, Oakland.
Hon. SAMUEL MERRITT, M. D., Oakland.
Hon. JOHN F. SWIFT, San Francisco.

HONORARY REGENTS.*

J. MORA MOSS, Esq., Temescal.
Hon. S. F. BUTTERWORTH, San Francisco.
Hon. JOHN S. HAGER, San Francisco.
A. J. BOWIE, M. D., San Francisco.
WILLIAM C. RALSTON, Esq., San Francisco.
Hon. JOHN B. FELTON, Oakland.
LOUIS SACHS, Esq., San Francisco.
Hon. HENRY H. HAIGHT, Alameda.

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* The term "honorary," applied to the Regents, indicates only the mode of their election, which is made by the ex officio and appointed Regents. Every Regent is a full member of the Board.

EXECUTIVE OFFICERS.

PRESIDENT OF THE UNIVERSITY,

DANIEL C. GILMAN.

ADVISORY COMMITTEE,

MESSRS. BUTTERWORTH, DWINELLE, HAIGHT, MARTIN, AND STEBBINS.

TREASURER,

WILLIAM C. RALSTON.

SECRETARY,

ANDREW J. MOULDER.

DEAN OF THE ACADEMIC SENATE,

MARTIN KELLOGG.

COMMANDANT OF THE BATTALION,

WM. T. WELCKER.

FACULTY OF THE COLLEGES OF LETTERS AND SCIENCES.

PRESIDENT.

DANIEL C. GILMAN.

PROFESSORS.*

EZRA S. CARR, M. D.,

Professor of Agriculture and Agricultural Chemistry.

GEORGE DAVIDSON, A. M.,

Professor of Geodesy and Astronomy.

STEPHEN J. FIELD, LL. D.,

Professor of Law.

MARTIN KELLOGG, A. M.,

[Dean of the Academic Senate.]

Professor of Latin and Greek.

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*The Professors' names are arranged alphabetically.

JOHN LE CONTE, M. D.,

Professor of Physics and Industrial Mechanics.

JOSEPH LE CONTE, M. D.,

Professor of Geology and Natural History.

PAUL PIODA,

Professor of Modern Languages.

WILLARD B. RISING, PH. D.,

Professor of Chemistry and Metallurgy.

FRANK SOULE, JR.,

[U. S. Military Academy,]

Professor of Civil Engineering and Astronomy.

WILLIAM SWINTON, A. M.,

Professor of the English Languages, Rhetoric, and History.

WILLIAM T. WELCKER,

[U. S. Military Academy,]

Professor of Mathematics.

GEO. C. EDWARDS, L. L. HAWKINS,

Instructors in Mathematics.

GEORGE W. BUNNELL, A. M.,

Assistant Professor of Latin and Greek.

A. H. ALLEN,

Assistant in Classics.

ROBERT E. OGILBY,

Instructor in Drawing.

JULIUS GROSSMANN,

Instructor in German.

MANUEL M. CORELLA,

Instructor in Spanish.

JAMES M. PHILLIPS,

Instructor in Hebrew.

STUDENTS.

I. CANDIDATES FOR A DEGREE.

1. FIRST, OR SENIOR CLASS.

(*a*) *In Science.*

Thomas D. Carneal	Oakland.
Samuel B. Christy	San Francisco.
John R. Farrell	San Francisco.
Isaac Freud	San Francisco.
David D. Griffiths	Grass Valley.
James S. Hook	Pacheco.
Frank Ingalls	Alvarado.
A. Wendell Jackson	San Francisco.
Frank O. Linforth	San Francisco.
Leo. J. L. Lynch	Danville.
Edward A. Parker	Grass Valley.
John Price	Menlo Park.
Rosa L. Scrivner	Stockton.
John M. Stillman	San Francisco.
Charles D. Stuart	Sonoma.
William W. Van Arsdale	San Francisco.

(*b*) *In Letters.*

Thomas F. Barry	San Francisco.
John E. Budd	Stockton.
David E. Collins	Oakland.
John Goss	Santa Rosa.
James C. Perkins	San Francisco.
Joseph C. Rowell	San Francisco.
Simon C. Scheeline	San Francisco.

Seniors—23.

2. SECOND, OR JUNIOR CLASS.

(*a*) *In Science.*

John F. Alexander	Reno, Nevada.
Jacob Apple	San Francisco.
John W. Bice	Healdsburg.
Leonidas S. Burchard	Oakland.
Henry J. W. Dam	Oakland.
William M. Fitzhugh	San Francisco.
William P. Gummer	San Francisco.
Isaac T. Hinton	San Francisco.
Dwight B. Huntley	Oakland.
George W. Pierce	Davisville.

R. H. Robertson	San Francisco.
Frank S. Sutton	San Francisco.
Harry Webb	Brooklyn.
William R. Windsor	Healdsburg.
John O. Wyatt	Antioch.

(*b*) *In Letters.*

Charles F. Boardman	Oakland.
Chesley K. Bonestell	San Francisco.
Joseph G. Brown	Healdsburg.
A. D. D'Ancona	San Francisco.
W. R. Davis	Santa Rosa.
Frank Deering	San Francisco.
William Carey Jones	San Francisco.
Arthur F. Low	San Francisco.
George M. Pinney	Oakland.
Samuel R. Rhodes	San José.
Josiah Royce	Oakland.
Lafayette Hoyt Smith	San Francisco.

Juniors—27.

3. THIRD, OR SOPHOMORE CLASS.

(*a*) *In Science.*

A. C. Bradford	Oroville.
Elizabeth Bragg	San Francisco.
William H. Chamberlain	San Francisco.
John B. Clarke	San Francisco.
Edmund C. Conroy	San Francisco.
David Cumming	San Francisco.
W. K. Dillingham	Healdsburg.
Ella F. Dyer	Alvarado.
Ella Ferre	Oakland.
Thomas J. Fitzpatrick	San Francisco.
Jacob Freud	San Francisco.
James H. Glennon	Alameda.
T. W. Gwinn	Oakland.
Roberdean Harmon	Oakland.
S. Hirschfelder	San Francisco.
Vincent Hook	Pacheco.
R. Irvine	Oakland.
Myer Jacobs	San Francisco.
Myer E. Jaffa	San Francisco.
Leslie A. Jordan	Healdsburg.
A. Laidlaw	Oakland.
N. A. Morford	Napa City.
Warren S. Palmer	San Francisco.
William Pearson	Placerville.
E. C. Prather	Oakland.
Horace A. Redfield	Oakland.
George Reed	Snellings.
P. F. C. Sander	San Francisco.
J. W. Stephenson	Healdsburg.
Marion P. Stone	Grass Valley.

Delos S. Watkins	Santa Clara.
Joseph W. Welsh	San Francisco.
Samuel Widney	Santa Clara.

(*b*) *In Letters.*

Winsor L. Brown	Oakland.
Augustus N. Buchanan	Oakland.
Frederick L. Button	Oakland.
W. Frank Hardy	Oakland.
Hattie J. Hodgdon	San Francisco.
Webb N. Pearce	Austin, Nevada.
Henry May Pond	San Francisco.
Arthur W. Scott	San Francisco.
Frederick Searls	Nevada City.
John E. Taylor	Grass Valley.
Benjamin P. Wall	Oakland.
Ryland B. Wallace	San Francisco.
James H. Wilkins	San Rafael.
John E. Wilson	San Francisco.
George T. Wright	San Francisco.
John G. Yager	Martinez.

Sophomores—49.

FOURTH, OR FRESHMAN CLASS.

(*a*) *In Science.*

H. H. Adler	San Francisco.
Walter S. Alexander	San Francisco.
A. B. Anderson	Snellings.
Frank W. Beck	Watsonville.
D. L. Bishop	Downer Lake.
Rebecca Bragg	San Francisco.
Lewis W. Brown	Cacheville.
Robert A. Brownlee	Napa City.
Charles D. Burrage	Napa City.
Frank H. Darling	San Francisco.
George E. DeGolia	Oakland.
Harmon Denslow	Brooklyn.
Theophilus J. D'Estrella	Oakland.
L. L. Dixon	San Francisco.
Ernest G. DuPy	San Francisco.
Horace D. Eliason	Santa Rosa.
J. D. Elms	Oakland.
D. B. Fairbanks	Petaluma.
George E. Fogg	Oakland.
Frederick L. Foster	Alamo.
Nathan H. Frank	Suisun City.
General G. Gates	Modesto.
A. C. Harris	Berkeley.
Henry Davis Hawks	San Francisco.
Theodore J. Hay	San Francisco.
Edward M. Jefferds	Visalia.
Frank King	San José.
David B. Marx	San Francisco.

Frank B. McCraken	San Francisco.
Harry Meek	San Lorenzo.
Geo. D. Murray	Eureka.
John Patrick	Healdsburg.
Humphrey B. Pilkington	Oakland.
Julius A. Remmel	San Francisco.
Ellen Rhoda	Fruit Vale.
Edward A. Rix	San Francisco.
J. L. Scotchler	Oakland.
William R. Shaw	San Francisco.
William R. Sherwood	San Francisco.
George C. Shurtleff	Shasta.
Frank Solinsky	Chinese Camp.
Howard Stillman	San Francisco.
Walter S. Stone	Berkeley.
William Swinton	Oakland.
James King Taylor	San Francisco.
Frank Whitby	Suisun City.
Alice H. Whitcomb	San Francisco.
Frank P. Willard	Woodland.
Sherrod Williams	Oakland.
Robert J. Woods	San Francisco.

(*b*) *In Letters.*

Chas. F. Burton	San Francisco.
Edwin W. Cowles	San Francisco.
Theodore Gray	Benicia.
William C. Morison	San Francisco.
Kossuth M. Murphy	Placerville.
David M. Pearlman	San Francisco.
Peter T. Riley	Grass Valley.
Henry D. Robertson	San Francisco.
John W. Robertson	San Francisco.
Reginald H. Webster	Stockton.

Freshmen—60.

Total number candidates for a degree—159.

II. NOT CANDIDATES FOR A DEGREE.

1. STUDENTS AT LARGE, GIVING ALL THEIR TIME TO STUDY.

(*a*) *With the First Class.*

William Turkington	San Francisco.

(*b*) *With the Second Class.*

F. A. Doe	Vallejo.
Clement F. Eastman	San Francisco.
Frank L. Fowler	Berkeley.
Frederick V. Holman	Portland, O.
Herbert O. Lang	Stockton.
Charles E. Pearson	Dixonville.

(*c*) *With the Third Class.*

Christine E. Chart	Oakland.
Charles B. Overacker	Centerville.
T. Prather	Oakland.
Sarah J. Shuey	Fruit Vale.
J. E. Simmons	Oakland.

2. SPECIAL COURSE STUDENTS, ATTENDING ONE OR MORE CLASSES.

Annie B. Aldrich	Oakland.
Lizzie Barton	San Francisco.
F. R. Coggeshall	Oakland.
John S. Collins	Oakland.
Manuel M. Corella	Oakland.
Emma Dixon	San Francisco.
Mary A. Harrison	San Francisco.
Sophie Harrison	San Francisco.
Mary Hart	San Francisco.
Sallie R. Hart	San Francisco.
Annie Haste	Berkeley.
Louisa Haste	Berkeley.
Mary Haste	Berkeley.
Eva L. Hilton	San Francisco.
Ida Hitchcock	Oakland.
Sallie Le Conte	Oakland.
Madeline H. Lissak	Oakland.
B. F. Mason	San Leandro.
Frederica L. Mitchell	San Francisco.
Mary Montgomery	Snellings.
Harriet D. Palmer	Oakland.
Jane D. Palmer	Oakland.
Mary H. Peters	Oakland.
Bessie Roche	San Francisco.
F. Slate, Jr.	Oakland.
Charles T. Smith	Georgetown.
Ella Steele	Pescadero.
Irene Van Dyke	Brooklyn.

Not candidates for a degree—40.
Total number enrolled—199.

FACULTY OF THE MEDICAL DEPARTMENT.

H. H. Toland, M. D., Professor of Clinical Surgery.

Geo. Hewston, A. M., M. D., Professor of Principles and Practice of Medicine.

R. Beverly Cole, A. B., M. D., Professor of Obstetrics and Clinical Diseases of Women.

M. W. Fish, M. D., Professor of Physiology.

C. T. Dean, M. D., Professor of Diseases of Women and Children and Clinical Obstetrics.

C. M. Bates, M. D., Professor of Clinical Medicine.

A. A. O'Neil, M. D., Professor of Anatomy.

W. T. Bradbury, M. D., Professor of Materia Medica and Therapeutics.

Chas. B. Brigham, A. M., M. D., Professor of Military and Orthopedic Surgery.

W. B. Rising, Ph. D., Lecturer on Chemistry.

N. J. Martinache, M. D., Lecturer on Opthalmology and Otology.

Arthur B. Stout, M. D., Professor of Principles and Practice of Surgery.

R. BEVERLY COLE, M. D., Dean,
Office, No. 16 Geary street.

NAMES OF GRADUATES OF MEDICAL DEPARTMENT.

Class of 1870.

Matthew H. Biggs, M. D.
Hiram Rucker, M. D.
John J. Mackenzie, M. D.
Charles T. Sage, M. D.
John Seawell, M. D.

Class of 1873.

Jerome A. Anderson, M. D.
Alexander P. Whittell, M. D.
Thomas H. Cox, M. D.
Eugene D. Martineaut, M. D.
William H. Mays, M. D.
Julian Sylvester, M. D.
Martin Schuabel, M. D.
J. C. O'Neill, M. D.

OFFICERS OF THE CALIFORNIA COLLEGE OF PHARMACY.

President	Wm. T. Wenzell.
Vice President	James G. Steele.
Secretary	J. W. Forbes.
Treasurer	Wm. Geary.

TRUSTEES.

Wm. T. Wenzell, James G. Steele, John Calvert, J. W. Forbes, Wm. M. Searby, and Wm. Geary.

FACULTY.

Professor of Chemistry—Wm. B. Rising.
Professor of Pharmacy—J. W. Forbes.
Professor of Materia Medica—William M. Searby.
Professor of Botany—Dr. Herhman Behr.

ON THE PROPER LAYING OUT OF THE SITE AT BERKELEY.

San Francisco, November 30th, 1873.

President D. C. Gilman:

Dear Sir: Upon glancing at the several letters which I have from time to time addressed to you, I find that you are already in possession of the leading ideas embodied in the theory of improvement which I propose to apply to practice in the development of the University ground. It only remains for me to consider the order in which it is expedient to prosecute the work, touch upon several of the more important matters of detail, and set before you some estimate of the probable cost of carrying out the plan proposed.

It is necessary to complete the shaping of the grounds around the buildings already constructed, make the roadways and paths which immediately surround them and those which lead to them from the southern entrance, and lay the drain and water pipes needful to accompany this much of the work, as speedily as possible.

The work thus designated should be done during the present Winter, the succeeding Spring, and Summer. It embraces about four fifths of all the grading, one third of the road building, and one fourth of the walk-laying contemplated by the plan. The completion of this proportion of work is necessary as laying the foundation for all operations of a horticultural and landscape nature in this the most prominent portion of the tract. At this stage the work might be allowed to rest until the further opening of streets and traffic from the proposed ferry landing would call for the continuation of the lower drive to the main entrance on that side, or when the inauguration of practical operations in experimental horticulture, agriculture, etc., would necessitate the development of the grounds set aside for such purpose, which would involve the building of the northern drive, and laying of the principal walks adjacent and leading thereto.

I have estimated that it will cost from forty to forty-five thousand dollars to complete the improvement of these grounds upon the plan submitted, including the principal plantation and nursery expenses. Of this amount, fifteen thousand dollars should be expended during the year eighteen hundred and seventy-four, and this would complete the work spoken of as necessary to be done immediately. Ten thousand dollars expended the succeeding year would go well towards developing the agricultural department of improvement. Thus, the total sum named might be expended through the next four or even six years. It must be remembered, however, that work prolonged in this manner will cost in the meantime for maintenance of such as is completed; and, also, that by working a larger force, carrying nearly the entire improvement on at once, a material percentage of expense is saved, by reason of the advantage to which the work can be prosecuted in this latter manner.

Respectfully, your obedient servant,

WM. HAMMOND HALL.

DESCRIPTION OF COLLEGE OF AGRICULTURE AT BERKELEY.

The College of Agriculture has a frontage of one hundred and fifty-two feet, with an average width of fifty-six feet. There are four stories in all, and thirty-four rooms in the building, six of them being thirty-two by forty-eight feet, and several of the others twenty by twenty-six feet.

At the south end are located the Quantitative and Qualitative Chemical Laboratories, connected by a private stairway with the private Laboratory and study rooms of the Professor of Chemistry; there is also a large room for elementary instruction in Chemistry, and special rooms for Humid Analysis, Sulphureted Hydrogen, and Toxicology. Adjoining the Quantitative Laboratory are the balance room, store room, and fusion room.

The lecture room of the Professor of Agriculture is at the north end, and is thirty-two by forty-eight feet in size. Adjoining are his two private work-rooms and study. The Library is also located at the north end on the principal floor, and over that is the Natural History Museum. This room is twenty-four feet high and is designed to receive a gallery and two tiers of wall cases for specimens, connected with gallery stairs. The grand lecture room at the south end—over the main Laboratory—is also twenty-four feet high, and is fitted up complete with graduated platforms for students' seats, arranged concentrically. On this floor also are the study and work-room of the Professor of Geology, Natural History, and Botany, three large section or class rooms, and the study room for female students. In the attic story is the Museum of Mineralogy, twenty by eighty feet in size, the Curator's room, and others not yet appropriated.

There is one grand staircase near the center of the building, and an elevator is also provided for the moving of heavy specimens or packages for the Museum or Library. The principal halls, rooms, and corridors are to be heated by steam. Separate lavatories and dressing rooms are provided on the several floors for the Professors, and for male and female students. Gas pipes are arranged for lighting, and fire hose supplied to every floor.

The basement is built of best Folsom granite, dressed as rock-face ashlar, and capped with fine cut water-table. The main walls are faced with pressed brick, and the whole of the window dressings, coins, pilasters, belts, etc., of cast iron. The building is bonded throughout in every direction with wrought iron, and the floors are supported by heavy wrought iron girders. The roof is of slate, and is surmounted by a cast iron cresting. The whole interior finish is of white cedar wood, varnished.

The furniture and fittings of laboratories, lecture rooms, etc., are in walnut and laurel woods. There are eighty-eight students' seats in the grand lecture room, and sixty-six separate work benches are provided in the two principal laboratories. These are also supplied with acid chapels, sand and water baths, filter tables, pneumatic cisterns, etc., all specially designed and arranged for the premises.

The whole building, in all its details, is admirably adapted to the purposes of the University; and is, in the opinion of experts, the best arranged and most complete scientific school in America.

COLLEGE OF LETTERS.

Length of building, one hundred and sixty-six feet.
Average width, sixty feet.
First story is divided into six compartments.
Second story into eight compartments.
Attic into eight compartments.
Basement into six compartments.
Height of building, sixty-four feet.

FIRST STORY.

Lecture room, forty-three by fifty-eight feet.
Two rooms, forty-three by fifty feet.
One room, twenty-four by thirty-two feet.
Philosophical lecture room, thirty-six by fifty-eight feet.

The building is divided into two halls in the center, and two flights of stairs from the main hall.

Four entrances from the outside.

SUGGESTIONS RESPECTING AN ARBORETUM AND BOTANIC GARDEN.

Botanic Garden, Cambridge, May 1st, 1873.

My Dear President Gilman: About a year ago, when I was planning the valedictory discourse before the American Association for the Advancement of Science, and expected to give it at San Francisco, I determined to devote a portion of it—and the most important part practically—to an exposition of the great advantages possessed by California for plant culture, and especially tree culture, that the Californians might know what a grand opportunity they had; and particularly the coast region.

It is said of Great Britain that a larger number of plants can thrive in it, in the open air, than in any other temperate region of the world. I suppose that near San Francisco many more species may flourish than at any station in England. I have a fancy that there is hardly any part of the world—and I am confident there is no other in the United States—where, given a natural supply of water, so great a variety of plants and trees may be cultivated and naturalized at so little expense. Glass will give protection to most of the tender things without fire heat, and so the great source of expense with us be saved.

We are doing what we can in the way of arboretum, etc., on this side. Professor Sargent, our new Professor of Horticulture, will, by and by, be able to tell you his plans and expectations, and I hope to show some results. You are our counterpart. Whatever fails here, through the rigors of our Winter, will thrive in California. Besides the grounds for horticulture at the nursery, and the small but well-stocked garden, etc., here, one hundred and thirty acres are secured for the Arboretum. I hope you will have a larger space, and you may have the advantage of an Arboretum on your University grounds, and enjoy the shade which you will need more than we do. The two establishments, if we could have them, though three thousand miles apart, would beautifully supplement each other, and leave little to be wished in that line. I could expatiate upon the importance of all this, but I have not time now, in this my busiest season; nor do I like to unite generalities, not at all knowing what you have done or are doing or planning; but now that you have surveyed your field I should like to know what you think of it; what foundations you think of laying in botanical and agricultural science.

Do not let me bore you. I shall not be disposed to do so; but I see grand opportunities available at small cost, and I can't help calling attention to them.

You will excuse a mere scrawl. My hand gets so tired by night that I can hardly do better. Believe me to be,

Very sincerely yours,

ASA GRAY.

LETTER OF EDWARD TOMPKINS, ENDOWING A PROFESSORSHIP OF CHINESE AND JAPANESE.

To the Regents of the University of California:

The business between California and Asia is already very great. Its future is beyond any estimate that the most sanguine would now dare to make. The child is now born that will see the commerce of the Pacific greater than that of the Atlantic. It is carried on with people of whose languages we are wholly ignorant, and in all the vast transactions that it involves, we are dependent upon native interpreters, whose integrity will not become more reliable, as the magnitude of their temptations shall increase. It is, therefore, of the utmost consequence for California, that the means shall be provided to instruct our young men, preparing for lives of business activity, in the languages and literature of Eastern Asia. It is the duty of the University to supply this want. It can only be done by a well organized Department of Oriental Languages and Literature, and every day that it is delayed is an injury to the State. Fully believing that it is to become not only an important, but a leading department of the new education that our peculiar circumstances demand, I have hoped that it might be my privilege to endow the first Professorship specially devoted to it. The wish has not brought with it the necessary means, and the money for the purpose is not within my control. But I have property that I can spare without wrong to any claim upon me, and rather than longer postpone an object that I deem so important, I venture to make you the following proposition:

I have prepared and now offer for your acceptance, a deed of about forty-seven acres of land, with good title, and free from incumbrance, at the junction of Broadway and University Avenue, Oakland, upon the following terms and conditions:

You shall forthwith establish, and as soon as practicable, fill a Professorship of Oriental Languages and Literature in the University of California, with the same salary as the other regular Professorships.

You shall take possession of the land conveyed by me, and sell the same as rapidly as it can be done judiciously, until you shall have sold the whole, or enough thereof to produce the sum of fifty thousand dollars in gold coin. All the money so realized shall be set apart as an Endowment Fund for said Professorship. It shall never be mixed with other funds of the University, or loaned in whole or in part to any other fund, or to the University itself, in any manner or on any pretext whatsoever. It shall be kept invested in mortgage securities, upon unincumbered productive real estate within the limits of the present County of Alameda. If the income shall exceed the salary of the Professor, the surplus shall be added to the principal, to provide as far as possible for the time when the rates of interest will be lower than they now are.

My consent in writing, or that of my legal representatives, if I shall not be living, shall be necessary to any sale of said land, or any part thereof, within five years from this date. After that time, no such consent shall be necessary to any sale or sales not exceeding in the aggregate the said sum of fifty thousand dollars.

Whenever said sum of fifty thousand dollars shall have been realized from said land, either in money, or in obligations, or securities, and there shall remain any surplus, either of land, or money, or securities, such excess shall be conveyed or paid to me, my legal representatives or assigns, it being my intention to give for the endowment of said Professorship the sum of fifty thousand dollars, if said land will produce that sum, and no more.

The salary of said Professor, until the same can be paid from the income of said Endowment Fund, and all expenses of the execution of this trust, or of the investment or reinvestment of the Fund, shall be paid by the Regents, and no money thus paid, whether for salary or expenses, shall be deducted from said Fund, or the subsequent income thereof, it being the intention hereof that neither said Fund or the current income thereof shall ever be diminished by any claim for advances made on its account, on any pretext whatsoever.

If said Professorship shall not be kept up, or the considerations hereinbefore stated shall not be complied with, said land, or so much thereof as has not been sold, and the proceeds of all that has been sold, shall forthwith revert to me, my heirs, or assigns, and shall be conveyed or paid over by said Regents without delay.

As a recognition of the debt of humanity to the great and good man now honoring our State with his presence, said Professorship shall be known as the "Agassiz Professorship of Oriental Languages and Literature."

As the department thus organized will at first not be fully employed, I hope that it may also be utilized for the education of such young men as may come here for that purpose from Asia, upon such terms and under such restrictions as the Regents may prescribe. As a lover of California, I feel deeply the humiliation of seeing them pass by us in almost daily procession to the other side of the continent, in search of that intellectual hospitality that we are not yet enlightened enough to extend to them; and yet more, that I cannot impose this as a condition of this trust, without danger of injury to the great interests that I most earnestly desire to promote.

I repeat the expression of my regret, that it is not in my power to simplify this trust by the direct payment of the necessary money. Desiring to place it beyond contingency by completing it during my own life, and to make such return as I am able, for the kindness and prosperity by which I have been blessed in California, I have decided to postpone it no longer, but of such as I have, of that, freely to give.

I humbly pray, that in the coming time, the Agassiz Professorship may be an instrument of great good to those for whose benefit it is designed.

EDWARD TOMPKINS.

OAKLAND, September 18th, 1872.

ADDRESSES
AT THE
UNIVERSITY COMMENCEMENT,
JULY 16TH, 1873,

WHEN THE UNIVERSITY OF CALIFORNIA FORMALLY ENTERED UPON
THE SITE AT BERKELEY.

ADDRESS OF PRESIDENT GILMAN.

When we were hoping to hear, at this time, the voice of an honored orator from the East, one of the builders of this hall, pointing westward, said to me one day, "There will be his subject; the Pacific Railroad uniting us to the past, the great city which speaks for to-day, and the ocean opening to the future." With suggestions like these, this place is indeed at all times eloquent; but to-day a new sentiment blends with those which have hitherto been dominant: the sentiment of satisfaction that after years of hope and promise the University of California has actually entered into its promised land.

Although the sound of the hammer is still heard upon the walls, and the grounds are not yet graded, we have come up hither to this home of our expectations, that the class of eighteen hundred and seventy-three—the first to complete a four years' course in this University—might receive their diplomas, dated from Berkeley; and also that a formal declaration might be made to the generous people of this State, that by their liberality, these two great college buildings have been made ready for the instructions of our youth.

Let me ask you, now, to take a view of our material prospects.

Incomplete as are the surroundings, the plan of these edifices is obvious; the one, a costly, massive and enduring hall, proof, it is hoped, against the quakings of the earth, and the inroads of time; the other spacious, economical, and in a high degree convenient, but possibly liable at some future day to yield its place to a more solid structure.

In the building to the south, the well furnished laboratories which are designed for students in chemistry and agriculture will be placed; and there, for the present at least, will be arranged the collections of the State Geological Survey, the valuable cabinet given by Mr. Mills, with such other illustrations as may be brought together of the mineral, metallurgical, botanical, zoölogical, and ethnological characteristics of this coast. Two other choice collections in natural history, those of Mr. Edwards and of Mr. Stearns, offered to the University at moderate prices, and of inestimable value, await a purchaser, who will find prepared for them ample room. Is there not some one who will secure them for us? Here, too, will be placed the library, which numbers already eleven thousand volumes, and has the promise, from a generous source, of early desirable additions. Portraits and other paintings are likewise offered to us for the decoration of the walls, and the promotion of a love of art.

In this north college, where we are now assembled, are not less than twenty well arranged lecture-rooms and class-rooms, ranging in size from this, which holds perhaps five hundred persons, to the class-room for twenty pupils. Two of these rooms—that of Ancient Languages and that of Civil Engineering—are to be furnished with their appropriate apparatus by the liberality of two friends. Here, too, will be established the offices of the Faculty and Regents.

The original incorporation of the University provides for a central building or "Hall of California," for which the funds have not been appropriated. A separate library and museum will one of these days be needed. An astronomical observatory of a costly character we can afford to wait for; but a physical observatory, for the study of magnetism, meteorology, and the phenomena of earthquakes, not a very costly outlay should be at once provided.

For the laying out of roads, walks, aqueducts, and bridges a competent engineer has suggested an elaborate plan, based upon the plot which was made for us by the Coast Survey. Much of the park, as you have observed, is already planted with rapidly growing foliage; some choice and rare plants have also been set out. Certain portions of the grounds are to be reserved for agricultural and horticultural experiments and practice. Such sites as are suited to forest culture will be thus improved, though to render that service to the State and to science which is loudly called for, a much larger tract of land than ours would be requisite. An earnest plea has lately come to us from Dr. Gray, the world-renowned botanist of Cambridge, asking in this respect the coöperation of this University.

On the borders of this site, and beyond its limits, homes must soon be built for officers and students; schools and churches, hotels and market shops are already requisite. In these particulars, the University needs at this moment the strong coöperation of all its friends. Lodging houses for scholars and teachers are needed in abundance and at once, with means of rapid and easy transit from both Oakland and San Francisco. More than two hundred persons are ready to take up their homes at Berkeley next Autumn; two hundred more would follow next Spring if the houses were provided for them. A generous gift of several acres of land, and offers of at least five thousand dollars, have recently been made for a students' hall or lodging house, to be located near the University. I long to see its walls ascend.

As we survey the site in all its richness, let us pause for a moment and render a tribute of gratitude to the perseverance and foresight of the College of California, which secured for all time this beautiful possession.

But all these material advantages, so essential to our welfare, would be nothing without the live men to interpret and employ them. All this outlay is for the training of mind, for the cultivation of our youth, for the intellectual and moral advancement of California. Already, for this purpose, in a modest way, three departments of the University are organized—a College of Science, a Classical College, and a School of Medicine. In the Literary and Scientific courses, one hundred and eighty-five scholars have been enrolled the past year. In all departments the aim of the instructors is to do with thoroughness whatever is undertaken; but we need at once, in order to provide for the special courses in Science and Letters, which modern systems of education call for, a large increase in our teaching forces. These accessions to the Faculty must be provided by the State, or by individuals, if the people of this community are to give to their children that varied, higher, general, and special training which is so earnestly demanded. A well equipped School of Mines is one great want, and Professorships in several other departments of learning, not yet recognized among us, are likewise imperatively called for.

Our plans of education are disposed to include all that the past has handed down of good, all that the future may offer to us. By the study of Language, Philosophy, and History we inherit the rich experiences of humanity; by the study of Natural Science we search after the laws of creation, and reach out for the divine. Art, Literature, and Oratory, the fruits of culture, will here, I hope, forever dwell; while Geometry, Chemistry, and Physics, the basis of the useful arts, will likewise inspire their earnest votaries. Such is the position of the University of California as it enters upon its home at Berkeley.

To Governor Booth:

I turn to you, sir, as the honored representative of the people of California, and acknowledge their generous confidence hitherto, and ask their continued coöperation in the future. Mistakes have doubtless been made; errors may hereafter creep in. But where is the battle field on which nobody blundered? Here it is that our contest must be fought, with these forces, on this field, with these imperfect weapons, and with these fresh recruits. Ours is the contest of education against ignorance, of science against empiricism, of civilization against barbarism, of day against night. If victory perches upon the University standard, it will show the triumph of all the good forces now at work in California—a triumph none the less glorious because it will be silent and serene. Permit me to ask your assistance, and that of all wise lovers of the State, in shaping the future of the University, so that publicity may give confidence to all our counsels, that frugality may win income for our treasury, that catholic charity may rule in all our discussions, and that truth may abide among us in the class-room and the study.

To the Class:

Young gentlemen of the Class of eighteen hundred and seventy-three: The last moments of your undergraduate life have come, and you are about to be welcomed to the ranks of the graduates. This is no idle ceremony which we perform. Hallowed by past associations, honored by the presence of many honored men, graced by the familiar faces of kindred friends, the day at last has come when you cease to be undergraduates, and "commence" your career as educated men. Long may the word "commencement" mark this day, declaring everywhere that there is no such thing as a finished education, and that each epoch to the scholar is the commencement of new toil; each honor, as he gains it, the commencement of new efforts.

In the year sixteen hundred and forty-two, at Cambridge, in Massachusetts, the first American "commencement," based on the usage of old Cambridge and Oxford, was publicly held. The historian tells us that "upon this novel and auspicious occasion the venerable fathers of the land, the Governor, magistrates, and ministers from all parts, with others in great numbers, repaired to Cambridge, and attended, with delight, to refined displays of European learning, on a spot which just before was the abode of savages." From that day to this, in unbroken sequence, each harvest time has welcomed a new accession to the scholars' ranks, and we are now repeating on the shores of the Pacific those academic usages. With these external rites, let us strive to perpetuate the old spirit of the scholar, the spirit of labor and self-sacrifice, the love of learning and culture, the desire to gather up the experience of the past for the benefit of the future. With this high commission, the University of California sends you forth the first of its four-year classes. You are twelve in number; be jurors, sworn to declare the truth as you find it; be apostles, bearing everywhere the Master's lessons!

Young gentlemen, as we part, I invoke upon you the blessing of Almighty God; I bid you welcome to the responsibilities and the opportunities of educated men; I warn you against dishonesty, selfishness, and sloth; and in the name of this band of instructors, who have watched for four years the unfolding of your characters, and who will ever be your friends, I bid you, with mingled hopes and fears, an affectionate farewell.

ADDRESS OF GOVERNOR BOOTH.

I congratulate you, Mr. President, and ladies and gentlemen, upon this auspicious day. Here, upon this site, commanding a landscape of surpassing beauty, with rolling hills and gentle slopes, the bay, the Golden Gate, the city, and distant outline of the mountains; in this delightful climate where every day invites to healthful toil and every night to rest; here, with the great continent behind, the vast ocean before; here, where nature's silent teachers—earth, air, sea, and sky—whose unconscious influences blend with the thought and temper the spirit, preside in their most benign aspects, is to be the seat of the University of California.

The buildings to-day dedicated to their high purposes inspire us rather with hope than with pride. They are not so much the visible sign of what has been done as the pledge of what shall be done—the assurance that this institution shall keep abreast with most advanced thought, generous spirit, and liberal ideas of an advancing age—that it will not be a hiding place for bats and owls, but the home of the morning-greeting lark. All hail the hereafter!

We do not want an University because other States have them, and it is the State fashion. We do not desire it as an external evidence of our civilization, that we may bring distinguished visitors to it and make proclamation through the newspapers. We do not want it as an ornament—as a flashing jewel or glittering crown. It is for use, not show; for every-day wear, not holiday attire. We want it to establish a higher standard of culture and morals. We want it not merely as a teacher and disseminator, but as a searcher after truth, an investigator, a discoverer. We want an University not for a class or for the professions, but for the people, in sympathy with their wants, instinct with their life, aglow with their spirit, marshaling them the way they ought to go, showing by leadership and example that the educated man is not a member of a caste—a drone, a pensioner, entitled as such to the easy chair and comfortable place, to be fed, clothed, and admired, but that his guild is humanity. The more educated he is the more human he becomes, the more impact with manhood, and the higher his obligation to manly usefulness—that his University diploma is but a certificate, his degree he must confer upon himself, his credentials bear his own signature and seal.

In this age, when so much is expected from organization and so little from personal effort, in estimating the value of institutions we are constantly in danger of leaving out of our calculations one very important factor—individual manhood. The most skillfully devised machinery cannot expend a grain of power more than it receives, and the most perfect human institution cannot accumulate any moral power which it does not receive from the human will. Result will be the exact equivalent of right effort, and institutions, like machinery, can only give direction to force. In this institution of ours there must be no wasted force. It will not run itself. It must be run by brain-power, and a good deal of it. There must always be a man at the crank. Steam or electricity will not answer. No, nor wind either. Emerson somewhere advises us to hitch our wagon to a star; but starbeams don't make good traces. A good deal has been said about the power of moral gravitation, but that force pulls both ways, and if ever you see anything moving in the right direction, you may be sure that somewhere, at some time, some man has given it the right impulse, and some men are keeping it up. It is upon us, gentlemen Regents, and you, Mr. President, and gentlemen of the Faculty, and our and your successors, that the success or failure of the University, as now organized, depends. Princely endowments and munificent gifts will not answer. There must be the right application of money—wise, economical, watchful, honest. Riches may serve to make poor. The prodigal son, when he was wasting his substance in riotous living, was not richer than when feeding upon husks. Looking to results, he was poorer—in the one case he was going devilward, in the other homeward.

Chairs filled by men of learning and reputation are not sufficient. There must be determination, zeal, enthusiasm, devotion. Gentlemen of the Faculty, the people expect much of you. They look to you for help in solving their questions, removing their difficulties, and making their paths straight. There never was a time when popular scientific inquiry was so general and trenched so closely upon the ultimate truths of life. Never were there so many purveyors of facts—never were demanded so patient a sifting, so close a scrutiny, so keen an analysis, and such broad generalization.

We seem to be upon the eve of great discoveries. We know not what shape they will take. Perhaps they will come in unexpected ways. Small things are not to be despised. A convex glass brings the planets near us, and reveals a living world in a drop of water. A triangular prism of glass discloses constituents of the sun. The lid of a tea-kettle is raised, and continents are neighbors. A frog dressed for Galvani's supper, brings the world into instant communication.

What will future discoveries do—the secrets that are throbbing to be revealed? What influence will they have upon society, law, politics, industry, philosophy, life? Will they give us a cheaper motive power than steam, better building materials than wood, brick and mortar, stone and iron? Will they make land more productive, and aerial navigation possible? Will they give bread to the poor—check concentration of capital and population, equalize distribution, make the voter more intelligent, the officer more honest, reduce taxes and the friction of government, do away with soldiers, make powder a blasting agent, and war a memory? Will they alleviate the pains of sickness and soften the bed of death? Will they give us clearer vision, make the heart beat quicker, the blood run redder, send a finer nerve-force to the brain, diffuse a more ethereal presence through this corporeal frame, and reveal the thrilling secrets of the spirit's birth?

We seem to be drawing nearer to the waters for which our souls are athirst. It may be a mirage. It may be the rustling of the winds, not the rippling of the waves, that falls upon our ears. We may fall by the wayside. It may be that human eye shall never see, human lip never taste, but the impulse within says "Onward!" Gentlemen of the University, in the name of the people of the State, I bid you, onward, at the head of the column! All hail the hereafter!

ADDRESS OF BISHOP KIP.

The portrait of Bishop Berkeley was presented to the University as the gift of Hon. Frederick Billings. The presentation address, written by Bishop Kip, was read by Rev. H. D. Lathrop, D. D.

Mr. President and Gentlemen of the Board of Trustees: I have been honored to day with the office of presenting to you the portrait of Bishop Berkeley, which has been executed for the Gallery of the University through the liberality of Mr. Billings, the former President of your Board. I regret exceedingly that a professional engagement, which I could not forego, prevents my personal attendance, and I reluctantly resort to this method of discharging this trust.

But how many threads of association are there, in the circumstances of this presentation, connecting us with the distant and the past! The portrait comes to us from Yale, to whose Gallery the original belongs. You and I, Mr. President, both rejoice in being Alumni of that venerable institution, and have often gazed upon the picture of which this is a copy. We grew up under the influence of Berkeley's name, and surrounded by the books which once formed his library. This portrait, therefore, carries us back to our early days and the pleasant hours of college life. And may I be pardoned if I add another personal consideration? It is the coincidence, that the presentation of the portrait of the first Protestant Bishop who landed on the Atlantic Coast should be made by the first holding the same office who was called to labor on the shores of the Pacific.

For nearly two centuries the name of Berkeley has been a power in the intellectual world; but how little is understood by the mass of the community with regard to his life or labors! By many he is only remembered through that line of Pope, who, when ascribing to the leading men of the day their different characteristics, says:

> "To Berkeley, every virtue under Heaven." (1)

Or, perhaps, he is known to many more only by his oft-quoted prophecy:

> "Westward the course of empire takes its way;
>   The first four acts already past,
> A fifth shall close the drama with the day;
>   Time's noblest offspring is the last."

It may not be amiss, therefore, to look back for a few moments to his remarkable career.

Born in sixteen hundred and eighty-four, he was one of those men who are far in advance of their age. Distinguished in early life as one of the most profound thinkers and able metaphysicians of his day, in his warfare against Materialism and the application of his principles to physical sciences, he inaugurated a new era in the intellectual history of his age. When still quite young, appointed Dean of Derry, the highest honors of his profession were opened before him. But his sympathies had been enlisted for the aborigines of this distant continent, and he determined to devote to it the labors of his life.

Strange to us, indeed, in this practical age, seems the way in which he attempted to execute his design. In the old voyagers he had read of the Island of Bermuda as a paradise in the Atlantic, on the verge of the tropics; a land of ceaseless Summer, where nature poured forth all the wealth which was denied to colder climes. He himself, in poetic imagery, pictures "the genial sun," and "virgin earth," and atmosphere "perpetually fanned and kept cool by sea breezes." (2) And we cannot wonder at these impressions when we remember how the poets had always treated Bermuda as a fairy land until it had become invested with a romance which made it an enchanted spot. Shakespeare alluded to it, when he made Ariel say:

> "Thou call'st me up at midnight to fetch dew
> From the still-vexed Bermothes." (3)

And Waller thus describes it in glowing language, as he compares its Hesperian garden with the colder scenes of his native England:

> "For the kind Spring, which but salutes us here,
> Inhabits these, and courts them all the year;
> Ripe fruits and blossoms, on the same trees live;
> At once they promise, and at once they give.
>
> So sweet the air, so moderate the clime,
> None sickly lives, or dies before his time.
> Heaven sure has kept this spot of earth uncurst,
> To show how all things were created first." (4)

Only six hundred miles from our coast, he determined that there he would establish his college, (1) to which the young aborigines could easily be transported from the mainland and thus trained up in civilization and religion, eventually to mould up into the same likeness their tribes at home. It was the impracticable dream of one who despaired of the worn-out civilization of the old world, and hoped to revive the golden age in that far distant isle of the sea. (2) Yet to this he was willing to devote his life, to forego his pleasant academic ease, and to abandon the intellectual culture and conventional dignities of the land in which his youth had been passed.

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(1) Even in a Bishop I can spy desert;
Secker is decent, Rundle has a heart;
Manners with candor are to Benson given;
To Berkeley, every virtue under heaven.
—*Epilogue to the Satires.*

(2) Life of Berkeley, by Frazer, p. 105.

(3) "The Tempest," Act I, Scene II.

(4) "Waller's Battle of the Summer Islands."

Then came the struggle to interest others in his work, who, most often, looked upon him as "one that dreameth." Season after season was passed in London striving to enlist the wealthy and powerful, and suing for a grant from Parliament, for the benefit of a distant continent about which few of its members cared at all. How could there be missionary spirit in an age when the usual language of the Bishops of the Church was, to lament the "growth of Atheism, profaneness, and immorality"—an age, when Bishop Butler tells us—"nothing remained but to set religion up as a principal subject of mirth and ridicule, as it were by way of reprisals, for its having so long interrupted the pleasures of the world." (3) The society was as corrupt in the reign of George I as it was in that of Charles II, without its literary brilliancy. The king, who spoke no English, was remarkable for his gross licentiousness, while the Minister, Walpole, was too much absorbed in strengthening the Hanover Dynasty, to trouble himself about tribes of Indians whose very names he had never heard. The whole history of these four years may be summed up in the two lines of the poet:

> "Besieging, year after year,
> Dull Prince and duller Cavalier."

But at last there was an apparent success. Through the personal fascination and conversation of the Dean, which few could resist, a bill was carried through the House of Commons, giving a charter and a grant of twenty thousand pounds to the intended College of Bermuda. Then Berkeley at once made his preparations for departure, and, in his forty-fourth year, turned his back upon all old associations, and accompanied by his family, and three or four friends whom he had interested in this cause, he commenced his romantic voyage to America.

He sailed for Newport, at that time the commercial rival of New York and Boston, where he intended to Winter, to purchase an estate, and to arrange for a correspondence and trade with Bermuda. Here the news reached him of obstacles which Walpole had interposed to

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(1) His first "tract" in London has this title: "A Proposal for the Better Supplying Churches in our Foreign Plantations, and for Converting the Savage Americans to Christianity, by a College to be Erected in the Summer Islands, otherwise called the Isles of Bermuda."

(2) In his verses on the prospect of planting arts and learning in America, we have these lines:

> "The muse, disgusted at an age and clime,
>   Barren of every glorious theme,
> In distant lands now waits a better time,
>   Producing subjects worthy fame;
> In happy climes, the seat of innocence,
>   Where nature guides and virtue rules,
> Where men shall not impose for truth and sense,
>   The pedantry of Courts and schools."

(3) Preface to "Analogy of Religion."

prevent the payment of his grant, and until these were removed, he settled at Newport. But Bermuda, which he had chosen as the scene of his efforts, and from which was to go forth the influence which was to found that "Fifth Empire"—"Time's noblest offspring," as he termed it—he was destined never to see. Years passed away, and he was no nearer the goal of his hopes, and no favorable news came over the ocean from his old home. Yet, at Newport he purchased a farm and residence, and there, in this enforced exile, he wrote his "Minute Philosopher," and those celebrated verses I have already quoted, so well known for their seeming prophecy of this Western World. At last, the conviction grew upon him that nothing was to be hoped for from Walpole, who regarded his enterprise as an outburst of Christian knight errantry, and wearied out with delay, his golden dreams dissolved, and in seventeen hundred and thirty-two he determined to return to England.

He had failed in his great object, yet in another way he did realize his idea of benefiting the cause of education on this continent. His Newport farm, of ninety-six acres (named Whitehall), was presented to Yale College, for the encouragement of Greek and Latin scholarship, and now, each year, the conferring of the Berkleian prize for classical acquirement, "keeps his memory green."

And here, Mr. President, I may be pardoned if I indulge for a moment in a personal allusion, and inform this audience that you were, yourself, in your college days, the winner of the Berkleian prize. And strange as it may seem, connected with our present surroundings, the subject prescribed for the classical essay of that year, and on which you wrote, was "California"—as our old Professor Kingsley announced the theme—the "*auri sacra fanes*" (which we may translate, "the greed of gold"), as shown in the exodus which had then just commenced to this coast. It is another of the remarkable links of association which we see in the service of to-day.

Besides the conveyance of his farm, Berkeley made a donation of books to the College Library, consisting of one thousand volumes—"the best collection of books," says President Clap, "which had ever been brought at one time to America." A valuable donation of books was also made to Harvard College. (1)

Newport also shared in his gifts, and now, on each Sunday, the worshippers in old Trinity Church listen to the music of the organ which he presented.

A few words more will finish the story of his life. Elevated, shortly after his return, to the Bishopric of Cloyne—a small diocese, which left leisure for his favorite literary pursuits—his life flowed on (to use the words of Milton) "in the still air of quiet and delightful studies," until, in his seventieth year, he peacefully passed away, leaving the reputation, for devotion and learning, of one of the brightest ornaments of the Church of England.

And now to-day, in this distant region, of which he never dreamed, just one hundred and twenty years from his death, we are called to commemorate his devotion to the cause of education and religion. We are told that "the evil men do lives after them," but so also does the good. To-day the spirit of Berkeley is with us here, and may it not inspire some to tread in his footsteps, and have their names written in imperishable characters for future generations? One, who has already gone, in the Professorship which he founded, has left an enduring influ-

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(1) The Harvard collection was unfortunately destroyed by fire in 1764.

ence, and to-day we recall his memory in gratitude and sadness. (1) How many more are there who can imitate his example, and as now we see done by the friends of Yale, by the erection of a hall which is to bear their names, can be remembered, perhaps, centuries after they themselves have passed away! Oh, there is a world of meaning in that line of the poet's: (2)

> "'Tis infamy to die and not be missed!"

And now, let us turn to the portrait, which it is my honorable duty to present. Among the party who sailed for America with Berkeley, was Smibert, the earliest artist of any note who visited this country. He is remembered as being, in late years, the teacher of the celebrated Copely. He painted the portraits of the Berkeley family in Boston, in seventeen hundred and thirty-one, just before they embarked for England. The picture contains a group of eight figures. The Dean is standing, resting his hand upon his volume of Plato and dictating to Mr. Dalton, who is acting as his amanuensis. His wife and the female friend who accompanied her are seated, the latter with a child in her arms. Mr. James is standing behind the ladies. (He and Mr. Dalton are the two friends who came with him from England.) The artist himself appears in the picture with some friend, whose name has been forgotten.

This picture, as I have already stated, is in the gallery of Yale College. There are eight other portraits of the Bishop in England and Ireland; but this is so well acknowledged to be the best, that it was copied and engraved for the Life of Berkeley, lately published in London.

The portrait before us is by Professor Weir, of Yale College. He has accurately copied the head, but altered the figure, which in the original is awkward and not in agreement with the head. In that, also, but one hand and arm are shown. Here, both hands and arms are exhibited, the position of the whole figure being intended to correspond with the head, which is reflective. He is represented as holding his favorite Plato in his hand, from which he is supposed to have been reading that celebrated passage in the Timœus, in which the old Greek philosopher so wonderfully prophecies of that "opposite continent, beyond the Pillars of Hercules," which is realized to-day in this land beneath the setting sun. (3)

The following is the letter of Frederick Billings, presenting a portrait of Bishop Berkeley to the University:

WOODSTOCK (Vt.), July 18th, 1873.

When I was in California, in April last, you asked me if a copy of Smibert's portrait of Bishop Berkeley, in the Yale School of Fine Arts, could be procured for the University. The question was a felicitous suggestion. It made known to me how, in a very appropriate way, I could give a little proof of my great interest in the institution which may be said to have grown out of the College of California, with whose history I was identified through all its struggles from the very beginning.

I say in a very appropriate way, for it is most fit that he who gave the name of the good Bishop to the site of the University, should have the privilege of placing his portrait in the University halls. And, as the suggestion was yours, I thought by promptly following it I should give token of my great gratification that you are the head of the University, and my sincere faith that you will harmonize all the complex elements of such an institution in such a field, and develop them into a great success. You are familiar with the original picture of the Bishop and his family. If not the only picture of him, it is recognized as the most authentic. The portrait is wonderfully well painted, as might have been expected, by Prof. J. W. Weir, and we all should be gratified for the special labor he has given it. Please present it for me to the University, when you take possession of the new halls at the coming Commencement in July. The University looks out through the Golden State of the Pacific to the islands of the sea, and the uttermost parts of the earth. The portrait, then, of this Christian philosopher, who could find in Plato the revelation of the New World, and prophesied so truly of the "Course of Empire," should be something more than a portrait—it should be like an invocation and inspiration of the largest, broadest, and most earnest spirit of learning and Christianity. So may it be.

Faithfully yours,

FREDERICK BILLINGS.

To President D. C. GILMAN.

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(1) The Hon. Edw. Tompkins, who during the past year, shortly before his death, gave the University fifty thousand dollars, to found a Professorship of the Oriental Languages.

(2) Carlos Wilcox.

(3) We give a translation of this passage: "There was an island situated in front of the straits which you call the Pillars of Hercules. The island was larger than Lybia and Asia put together, and was the way to other islands, and from the islands you might pass to the whole of the opposite continent which surrounded the true ocean; for this sea, which is within the Straits of Hercules, is only a harbor having a narrow entrance, but the other is the real sea, and the surrounding land may be most truly called a continent."—*The Timœus.*

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From James Anthony, Esq., Sacramento—*San Francisco Chronicle*, edited by Messrs. F. Soulé & Co., 9 vols., folio.

From American Board of Commissioners for Foreign Missions—American Board, sixty-second annual report, for 1872: Boston, 1872, 8o., 122 pp., sd.
Bartlett, S. C., Sermon at the annual meeting of the A. B. C. F. M., New Haven, October 1st, 1872: Cambridge, 1872, 8o., sd., 27 pp.

From S. F. Butterworth, Esq.—*New York Daily Times*, from its first number, published September 18th, 1851, until April 30th, 1865, 31 vols., folio, half bound.

From Hon. J. Ross Browne—United States Diplomatic Correspondence for 1861, 1 vol.; 1862, 1 vol.; 1863, part 2d; 1864, 4 vols.; 1865, 4 vols.; 1866, 3 vols.; bound in half turkey; Washington, 1862–67.
Chinese Commercial Guide, by T. W. Williams, Esq.: Hongkong, 1863, 5th ed., 8o., d.
Auber, Peter, China: London, 1834, 8o., d.
Murray, Hugh, History: Account of Discoveries and Travels in Asia, vols. 2 and 3: Edinburgh, 1820, 8o., d.
Pollard, E. A., Second Year of the War: New York, 1864, 8o., d.
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Blake, W. P., Geology: Reconnoissance of California: 4o., Wash., N. Y., 1858, 8o., d.
And seven volumes of miscellaneous public documents.

From J. L. Bardwell, Esq.—A portrait in oil, reputed to be an original portrait of Fallopius. Given to the Medical Department.

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From Charles B. Brigham, M. D., San Francisco—Brigham, C. B., Quelques Observations Chirurgicales: Paris, 1872, 8o., 101 pp. (with photographic illustrations.)

From the Bureau of Navigation, Navy Department, Washington, D. C., through the Hon. A. J. Moulder—Washington Astronomical Observations for 1870; Appendix IV, Zones of Mars, observed in 1846-7-8-9; Washington, 1872, 4o., d; ditto, Appendix III, On the Right Ascensions of the Equatorial Fundamental Stars, by S. Newcomb: Washington, 1872, 4o., sd.

From Hon. J. E. Benton, Postmaster, Oakland—Shufeldt, R. W., Report on the Proposed Tehuantepec Ship Canal: Washington, 1872, 4o., sd.
Outline Description of United States Military Posts and Stations in 1871: Washington, 1872, 4o., cloth.

From Professor J. D. Whitney, L.L. D., State Geologist—Geological Survey of California.
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From William F. Watkins, Esq., Photographer, San Francisco—Copies of a photograph representing a birds-eye view of the building proposed to be erected for the University of California, as designed by D. Farquharson, Esq., Architect.

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From John H. Carmany, Esq., Publisher of the *Overland Monthly*, San Francisco—The West, Vol. I, 1872, hf. bd.
Skinner, O., Issues of American Politics: Philadelphia, 1873, 8o, cloth.
Victor, Mrs. F. F, All over Oregon and Washington. Observations on the country: San Francisco, 1872, 8o., cloth.
Crosby, Alpheus, Compendious Greek Grammar: New York, 1871, 12o., cloth.
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Hodge, C. L., First Lessons in Physics: St. Louis, 1871, 12o., hf. sheep.
Tennant, Charles, People's Blue Book, fourth edition: London, 1872, 12o., sd.
Grant, U. S., and Wilson, H., Lives of, (Peterson's campaign volume:) Philadelphia, 1872, 12o., d.

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United States Commissioner of Revenue (D. A. Wells), Report for 1869: Washington, 1869, 8o., pp. 144, sewed.

From California Academy of Sciences—California Academy, Transactions of, vols. 2, 3, and 4, 8o., 3 vols., 1858–72.
California Academy Proceedings, Vol. V., Pt. 1, 1873, 8o. sd.

From Prof. E. T. Cox, State Geologist, Indianapolis, Indiana—Indiana State Board of Agriculture, Thirteenth Annual Report: Indianapolis, 1872, 8o. cloth.
Indiana Geological Survey, Second Report of, for year 1870, by E. T. Cox and others: Indianapolis, 1872, 8o. cloth.
Indiana State Superintendent of Public Instruction, Eighteenth Report of, for the year 1869 and 1870: Indianapolis, 1870, 8o., sewed.

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From Commissioner of Patents, Washington, D. C.—Official Gazette of the United States Patent Office, in consecutive numbers: Washington, 1872–3, R., 8o., sd.

From the City of New Haven, Conn., through Hon. H. G. Lewis, Mayor—New Haven City Year Book, No. 12, for 1872–3: New Haven, 48 pp., 8o., Turkey.

From F. B. Dexter, Esq., Secretary of Yale College—Linonian & Brothers' Library Yale College, Catalogue of: New Haven, 1873, 8o., sd.

From James De Fremery, Esq., Oakland—A copy of the Deed of Foundation of the Chamber of Industry, indenture made October 31, 1870, between Horace Hawes and certain specified trustees.

From the author, H. B. Eddy—Malay and Indian Archipelago; a Lecture at Sacramento, April 1, 1873, 8o., 14 pp., sd.

From Hon. Jacob Eaton, United States Commissioner of Education—United States Commissioner of Education, Report of, for the year 1871: Washington, 1872, 8o., d.

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Congresses, I–V, 9 vols.
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St. Louis Public Schools' Annual Report of the year ending August 1st, 1872: St. Louis, 8o., sd , pp. 320.

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Address as President of the American Medical Association: St. Louis, 1873, May 6th, 8o., sd.

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From the Smithsonian Institute, Washington, D. C.—Schott, C. A., Tables of Precipitation in Rain and Snow in the United States: Washington, 1872, 4o., bound.
Smithsonian Reports, 1865–70, inclusive: Washington, 8o., six volumes, cloth.
March 5th, through Professor Henry—Schott, Charles A., Tables and Results of the Precipitation of Rain and Snow in the United States: Washington, 1872, 4o., bds.
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Volney, C. F., Oeuvres, eight volumes, 8o., 1826: Paris.
Bolingbroke (Lord) works, five volumes, 8o., bds.: Dublin, 1793.
Dulaure, Révolution Francaise, six volumes, 8o.: Paris, 1873.
Paris, ou le Livre des Cent-et-un: Paris, 1831–3, 13 v. 8o., hf. sheep.
Congressional Globe (seven scattered volumes).
Assembly and Senate Journals of California, eleventh session, five volumes, 8o.
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From the Trustees—Report of the Trustees of the Public Library of Charlestown, Mass., 1872: Charlestown, 1873, 8o., 13 pp.

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From the United States Naval Observatory, Rear Admiral B. F. Sands, Superintendent—Zones of Stars, observed at Washington, 1846–49. 1. With the mural circle. 2. Transit. (2 copies.) App. ii and iv to Wash. Obs., 1870: Washington, 1872, 4o., 2 v., cloth.
Results of Observations at Washington, 1853–60. (App. ii to Wash. Obs., 1871): Washington, 1872, 4o., cloth.
Report on difference of longitude between St. Louis and Washington. (App. i to Wash. Obs., 1870.) sd.
Right Ascensions of Equatorial Fundamental Stars. (App. iii to Wash. Obs., 1870,) sd.
On the Founding and Progress of the United States Naval Observatory. (App. iv to Wash. Obs., 1871,) sd.
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From the United States Coast Survey, through Professor G. Davidson, San Francisco.—A collection of charts, pertaining to the Pacific Coast.

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Parliamentary Debate of Great Britain, new series (ends July, 1827), nineteen volumes, 8o.
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From Rev. James Woodworth, Secretary California Prison Commission—Seventh Annual Report, 1871–2: San Francisco, 1872, 8o., sd., 38 pp.

From the author, A. Walker—Commercial and Monetary Interests of California: San Francisco, 1873, 8o., sd.

From the author, M. P. Wilder—Address as President of the New England Historical Genealogical Society, January 1st, 1873: Boston, 1873, 8o., sd., pp. 44.

From Charles Cook—Documentary History of New York, two volumes: Albany, 1849, pp. 786 and 1211.

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$8{,}082\frac{8}{100}$ acres sold at $5 per acre	$40,410 40	
520 acres sold at $6 25 per acre	3,250 00	
$12{,}527\frac{46}{100}$ acres sold at $5 per acre, of which 20 per cent, cash, was paid, and remainder on time, and bearing interest at 10 per cent per annum	12,527 46	
$14{,}354\frac{86}{100}$ acres sold at $6 25 per acre, of which 20 per cent, cash, was paid, and remainder on time, and bearing interest at 10 per cent per annum	17,943 41	
Installments on lands sold prior to December 1st, 1871.		
Fourth and fifth installments on 640 acres, at $5	1,280 00	
Third, fourth, and fifth installments on 160 acres, at $5	480 00	
Second, third, fourth, and fifth installments on 680 acres, at $5	2,720 00	
		$78,611 27
From interest		22,037 23
From land fees		1,683 00
From water rates		845 00
From excess payments		321 03
From State appropriation account.		
Cash received from State Treasurer	$85,832 81	
Controller's warrants	9,995 61	
		$95,828 42
Balance of cash on hand December 1st, 1871		20,629 63
Total		$219,955 58
Balance of cash, including warrants, on hand November 1st, 1873, belonging to the Land Fund		$56,123 88

DISBURSEMENTS.

For salaries of President, Professors, Land Agent, Secretary, Janitor, and Messenger	$104,509 46	
For interest	10,665 98	
For library account	4,818 60	
For general expenses	4,769 27	
For University site improvements	4,009 67	
For equipment and repairs	3,569 11	
For free scholarships	3,000 00	
For rents	1,727 50	
For advertising and printing	1,153 85	
For Contingent Fund	1,230 00	
For supplies	1,149 35	
For preparatory department	955 39	
For insurance	462 00	
For office expenses	380 90	
For University Water Company	380 00	
For stationery	180 52	
For materials for the library	30 10	
For postage	30 00	
For legal expenses	10 00	
For Land Fund—sales canceled by order of the Board of Regents, and money refunded	20,800 00	
		$163,831 70
Balance on hand November 1st, 1873—cash	$46,128 27	
Controller's warrants	9,995 61	
		$56,123 88
Total		$219,955 58

AUDITED ACCOUNTS

Against University Building Fund.

Dennis Jordan, on account of contract for construction of College of Agriculture		$126,000 00
Dennis Jordan, for gas and steam fittings	$3,150 00	
Dennis Jordan, for furniture and fittings	4,161 80	
		7,311 80
Power & Ough, materials and labor on College of Agriculture		1,327 73
James W. Duncan, salary as Superintendent		3,200 00
Cleveland Rockwell, topographical survey of site at Berkeley		500 00
Hugh S. Slicer, grading, curbing, and macadamizing Twelfth street		1,352 82
David Farquharson, services as Architect		4,500 00
George J. Newsom, services as Architect and for altering drawings of College of Letters		790 00
L. L. Hawkins, surveying, etc., for the foundation of building		15 00
Power & Ough, on account of contract for construction of College of Letters		87,475 62
Power & Ough, for additions to the workshop		56 75
J. N. Bailey, sidewalks on Webster street and Franklin street, in front of the University buildings		420 40
L. L. Hawkins, services as engineer		88 00
F. Williams, stone for the College of Letters		30 00
John Easton, fittings and furniture for the buildings		2,500 00
F. M. Gilchrist, for labor and material on buildings at Berkeley		15,093 09
P. Schreiber, furniture for the buildings		2,817 51
W. S. Read & Co., for slating 1,751 square feet blackboard		172 48
Antonio Gincostra, night watchman, from August 7th to October 7th, 1873		120 00
W. J. T. Palmer & Co., desks and chairs		480 00
John R. Sims, iron girders		305 50
J. K. Prior, iron pipes, etc., and plumbing		566 72
Oakland Lumber Yard, for cement		121 55
Power & Ough, nine barrels of lime		22 50
W. L. Lamont, one set of blocks		32 00
Paid the students of the University for labor on the University grounds		431 70
Paid laborers for work done on and around the University buildings at Berkeley		1,605 00
Paid for advertising		194 25
Total		$257,530 42

REPORT OF THE LAND AGENT.

Land Office of the University,
San Francisco, November 20th, 1873.

Number of acres sold for which title has been issued	46,353.85
Number of acres accepted by United States Register and approved by the Land Agent, but title not yet issued	12,157.88
Number of acres accepted by United States Register, not yet approved by Land Agent	4,468.38
Number of acres selected by locating agents, and forfeited by applicants—now the property of the college	8,840.75
Total number of acres accepted	71,820.86
Application pending in the several United States Land Offices for surveyed lands—no action reported	44,022.47
Applications pending in the several United States Land Offices, not accepted because of conflict	9,441.87
Applications filed for unsurveyed lands	213,345.00

Respectfully submitted.

ANDREW J. MOULDER,
Land Agent.

TRANSACTIONS

OF THE

California State Agricultural Society

DURING

THE YEAR 1872.

SACRAMENTO:
T. A. SPRINGER, STATE PRINTER.
1873.

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INTRODUCTION.

The present volume is the thirteenth of the Transactions of the Society. It has been compiled under the law of the last session of the Legislature for the encouragement of agriculture and other industries, and in accordance with that law, contains the reports of the transactions of the several county and district agricultural societies at that time organized in the State, the transactions of the Bay District Horticultural Society, and the California Vine Growers' and Wine and Brandy Manufacturers' Association, for the year eighteen hundred and seventy-two.

Some of these reports have been prepared with considerable care, and contain matters of great interest in regard to the districts covered by them. Others contain only the official reports of the officers, including articles exhibited at the Fairs, premiums paid, etc. These reports have increased the size of the present volume over any of the preceding, and have added materially to its general value.

The transactions of the State Society contain the usual official matter, and, in addition to this, many able and exhaustive essays calculated to show the great and numerous resources of our State. They have been selected with a view to giving our own people a more perfect understanding of these resources, and point out the way to a more extended and diversified agriculture, and to the introduction of new branches of manufacture by which this agriculture may be encompassed and maintained.

The whole subject of the reclamation of our swamp and overflowed lands, and the irrigation of our dry plains, so as to bring all our lands into profitable cultivation, is discussed in an able manner by J. Ross Browne, and this article will prove of great value to all classes of our citizens, as well as to immigrants seeking homes among us.

Cotton culture in California is another subject of great interest, and under that head will be found a full history of the introduction and cultivation of this product in our State, showing conclusively that our soil and climate are well adapted to its successful and profitable culture.

Full information is also given as to the price and quality of lands in different portions of the State—a matter of great moment to all who desire to become owners and cultivators of the soil within our borders.

In submitting this volume to the members of the society and the public, we entertain the hope that it may prove of some value to the material industries of the State, and help our people to appreciate the many advantages they enjoy.

For the Board.

I. N. HOAG,
Corresponding Secretary.

ANNUAL REPORT

OF

The State Board of Agriculture,

FOR

THE YEAR 1872.

STATE BOARD OF AGRICULTURE FOR 1872.

PRESIDENT.

CHARLES F. REED	Grafton, Yolo County.

DIRECTORS.

C. T. Wheeler	Sacramento.
Edgar Mills	Sacramento.
Robert Hamilton	Sacramento.
C. Younger	San José.
C. H. Ross	Sacramento.
R. S. Carey	Yolo.
William Blanding	San Francisco.
E. J. Lewis	Tehama.
William P. Coleman	Sacramento.

OFFICERS OF THE BOARD.

Secretary	Robert Beck, Sacramento.
Corresponding Secretary	I. N. Hoag, Yolo.
Treasurer	R. T. Brown, Sacramento.

REPORT

OF THE

BOARD OF DIRECTORS.

REPORT OF THE BOARD OF DIRECTORS.

To the members of the State Agricultural Society:

Gentlemen: In our last report to the Legislature we entered into an extended review of the agriculture of the State. We do not at this time deem it necessary to do so, but will in brief refer to some of the subjects of most general interest, touch upon some of the new products and industries, give an account of our stewardship for the past year, and speak of the objects the Board has in view in the near future.

LAST YEAR'S PRODUCTS OF THE STATE.

In the first place, we congratulate you and the agriculturists of the State at large upon the fact that the past season has been one of greater abundance of the staple products than the State has ever before known. Secondly, that the prospects for the coming season promise even a greater abundance than the past has realized.

The wool clip of the year aggregates twenty-four millions two hundred and fifty-five thousand four hundred and sixty-eight pounds. The wine vintage is estimated at ten millions of gallons. The fruit crop exceeds that of any previous year.

THE WHEAT CROP—THE SACK QUESTION.

It is impossible to state the full amount of wheat that has been produced during the past year, but we may safely set it down, in round numbers, as not much, if any, below thirty millions of bushels, to say nothing of barley and other grains. Could this enormous crop have been anticipated, and the means of sacking and freighting it to market been provided at minimum rates, the farmers of the State to-day would have been in comparatively easy circumstances. The lessons of the past year should not be allowed to pass unheeded. If possible, the farmers in every portion of the State where wheat is the principal crop should at once make arrangements for securing at least a portion of the sacks they may need, at the lowest prices at which they may be contracted for from first hands. This may be done through the medium of the Farmers' Club, or through such other medium as may be the most convenient and effective. But the prudent and careful farmer will no more neglect to look after his interest in this respect than he will neglect to prepare his ground and sow his seed.

The next step should be to provide cheap and commodious warehouses along the lines of the railways and rivers in each county and district, in which the grain may be stored at low rates in case the price will not warrant the sale as soon as harvested. When once in such storehouses, the necessary money to pay off the debts created in its production and incidental expenses can be obtained, and then the farmer be placed in comparatively independent circumstances—able at least to take advantage of the market, both as regards the price of his grain, the price of sacks, and to wait for minimum rates of freights. Had the farmers been the owners of a sufficiency of such storehouses the past season, and used them as suggested, they could have forced down the price of sacks to such a figure that the pecuniary advantage thus gained would have paid for the first cost of the warehouses themselves. Not only this, facts which have since happened show that they would also have obtained enough more in the price received for their grain to have more than paid the expenses of putting in their next crop.

The laws of trade are almost as unchangeable as the laws of nature. When an article is scarce, or the demand is greater than the immediate supply, the price will appreciate; and so, on the other hand, if the supply is greater than the immediate demand, the price will depreciate. The operations of these unchangeable laws have this year been most decidedly against the farmers, and, if they would escape a like operation in the future, they must prepare the means and control the circumstances that control these laws.

Individuals can do but little in this direction, but enlightened and judicious unity of action can do much. Individual farmers cannot generally build and fill warehouses, nor can an individual farmer affect the price of sacks or grain or freight by storing and holding his grain, any more than the drying up of a small spring in the Sierras would affect the height of the water in the Sacramento River; but, as the drying up of all the springs would cause the river to fall, so would a simultaneous and united action of all the farmers of the State control the price of every article, not only that they produce, but to a certain extent of most articles they have to buy.

FARMERS' ORGANIZATIONS.

We are glad to see that the farmers of the State are waking up to a realization of these facts, and organizing themselves for self-instruction and self-protection. There are many ways in which these associations may be made useful, not only to the farmers themselves, but indirectly to all other classes and to the entire State. Through them, improved systems of cultivation may more readily and universally be introduced and practiced, the agricultural products of the State increased and diversified, and the general prosperity of the people very much enhanced.

CULTIVATION OF JUTE AND MANUFACTURE OF SACKS.

Nearly all our grain sacks are now made of the fiber of a plant called jute. The principal place of production of this plant is now in India, in the British possessions of that country; and the principal place of its manufacture, not only into cloth, but into sacks, is Dundee, Scotland. The cost to the farmers of California to sack their last crop of wheat was not less, but probably more, than two millions four hundred and fifty thousand dollars. At the ruling prices of wheat at the time these sacks were bought and paid for, it required two millions seven hundred and twenty-two thousand two hundred and twenty-two bushels of wheat, or a little more than one eleventh of all the wheat produced, to pay for them. This large amount of money, then, was transferred from the profits of the farmers to pay the labor of producing the raw material in India, the freighting of that raw material to Dundee, the manufacturing it into sacks at that place, and, finally, freighting them to San Francisco, and distributing them throughout the State; with the addition of the profits of the merchants, brokers, insurance houses, etc.

The question arises, how can these enormous expenses be saved in the future? Our answer is, let our farmers produce their own jute, and California labor manufacture it. We here venture the opinion that our rich bottom lands, particularly those in the southern portion of the State, where the facilities of irrigation are at hand, will produce not only as good a material, but as abundantly, as the best localities in India. Let the farmers at once take steps to secure the seed, and distribute it in small parcels among their numbers for planting and cultivation the present year. The first effect of such an undertaking, so generally entered into, will be the reduction of the price of sacks; and the next will be the demonstration of the fact that jute is one of the permanent and profitable products of the country. By the slow and discouraging process of individual effort it has taken ten years to demonstrate the fact that California is a good cotton-producing country; by such a general effort one year will settle the question as to jute.

CULTIVATION OF TROPICAL FRUITS, ETC.

The same suggestions we have made in reference to jute and its introduction and cultivation, are applicable to hemp, New Zealand flax, ramie, silk, coffee, tea, opium, rice, and the various kinds of tropical fruit, such as the pineapple, banana, mango, cocoanut, plantain, loquat, Chinese guava, the date, and many other new and valuable products and fruits, nearly all of which have been produced by individuals in different localities of the State, more by accident than design, but sufficient to warrant strong efforts for their general cultivation.

If the farmers, as now organized and being organized, will take hold of these new and valuable articles, and give them a thorough trial in different localities and soils, keeping a correct record of the circumstances of each individual experiment, they will perform a work that will bring vast and immediate benefits to themselves and indirect good to the whole people.

SUPPLY OF THE HOME AND FOREIGN MARKETS.

Again, it is a very good rule for our farmers to observe what particular product is raised in excess of the requirements of home consumption, and to produce less of this and more of those products which we are still importing, or for which there is still an unsupplied *home* market; for of all the markets in the world a *home* market is the best for any country; a foreign market is only good when the home market is over supplied, to consume the surplus.

Following this rule, they should cultivate less wheat, and produce more cattle, butter, cheese, chickens, ducks, and turkeys, ham, bacon, eggs; more cotton, tobacco, linseed, castor beans; more of various kinds of fruits for drying, canning, and pickling; more of all the nuts, such as the English walnut, almond, and pecan.

DIVERSIFIED PRODUCTS.

In fact, while it sounds well and seems to indicate the immense agricultural resources and unbounded prosperity of the State to have it said at home and published abroad that California produces such a vast amount of wheat for export that the tonnage of the world is brought into requisition to transport it; that we furnish millions of people on other continents with their daily bread; that our magnificent valleys are, in fact, the granaries of the world; that our wheat fields are broader, longer, and more grand than those of any other country; that we have individual farmers who own and cultivate more land than is owned and cultivated by princes, kings, or emperors anywhere else; yet is not all this calculated to deceive and mislead us in the development of the true and profitable resources of the State? Is it not an indication of coming poverty, rather than future, or even present, riches? Can a country thus situated support good schools and churches, bring up the rising generation to habits of industry, morality, and usefulness; build up intelligent, virtuous, and happy communities, or cheerful, beautiful, busy, and prosperous towns and cities? What, indeed, are the elements of a prosperous, happy, and powerful country? Are these to be found in individual success, the large possessions and immense wealth of the few, or in a general success, medium possessions, and reasonable wealth for all? These are subjects to which we invite the attention of those who have the best interests of our State at heart; those who make our laws and administer the Government.

OUR MANUFACTURING INTEREST.

We desire to call your attention to a class of industries, not exactly agricultural, but so intimately connected and interwoven with agriculture that neither can flourish to its fullest extent, and experience its highest prosperity, without the presence, assistance, and coöperation of the other. We refer to manufactures. And when we use this term, we use it in its broadest sense as including all the various manufactured articles consumed, worn, or used in any way by man, from the sweetmeat or toy for the child to the clipper ship or ocean steamer carrying the commerce of the world.

Agriculture alone can never render a country prosperous or independent, and the same is equally true of manufactures. They should go hand in hand, each supporting and receiving support from the other. As things are arranged, we are feeding the operatives of Dundee, who make our sacks to handle our wheat in; of Manchester and New England, who furnish us our cotton and woolen goods; of Birmingham, England, from whom we draw our hardware and cutlery; of Lyons, who clothe us with silks and satins; and we feed millions of people in all parts of the world who are engaged, one way or the other, in working up the raw material, much of which we produce, into manufactured articles for us, and pay exorbitant freight, commissions, insurance, and interest charges to convey the food we raise to them and bring the articles to us which they manufacture. The loss of profits our farmers are thus annually subjected to, if judiciously and properly applied in inducing those operatives to come among us, and in defraying in part their expenses when necessary, and in building and equipping manufacturing establishments, would soon place us among the foremost manufacturing, as we are among the foremost agricultural States, in the world, and would thus transfer the markets for our raw material from those distant countries to our own doors, and change such markets from indifferent, uncertain, and unreliable, to good, certain, and reliable.

VIENNA AND CENTENNIAL EXPOSITIONS.

During the present year there is to be a World's Industrial Exhibition held at Vienna, Austria, the very center of population of the Eastern Continent. There the mechanical ingenuity, the agricultural productions, the evidences of the civilization, the resources, and advantages of every country and clime will be on exhibition and claim the attention of every class of people from all parts of the earth.

In eighteen hundred and seventy-six, the centennial of our nation's birthday, in our country, at the City of Philadelphia, near the spot where our national independence was first proclaimed, a similar exhibition will be held. The question we now wish to ask of the members of the State Agricultural Society—of the people of the State at large—is, shall the industries and productions, the resources and natural advantages of California, be properly and favorably represented at these exhibitions? We anticipate the answer; but simply giving an affirmative to the question will not accomplish the object. An organized effort on the part of those engaged in every trade, every manufacturing interest, every agricultural industry, of the owners of town and city property, of landed possessions in the country, should at once be made and continued until the exhibitions are held, and California has fully and honorably been represented.

Seconded by its members and the people at large, the officers of the State Agricultural Society pledge their best efforts, their time, and services, to place California before the world on these occasions in such a manner as will secure to her all the advantages of these unusual and favorable opportunities. Full and reliable statistics of all our resources, of our advantages to immigrants, should be collected and published in a cheap but convenient form for general distribution, not only at these exhibitions but generally throughout the countries from which immigrants are desirable; and while the attention of the people of the world is being called to these things, through the preparations for and holding of these great universal exhibitions, is the time of all others to attract their attention and secure their favorable consideration and action. Of all others, the State Agricultural Society, representing all the industries and the whole people, is the proper medium through which this work should be accomplished.

THE LAST STATE FAIR.

The officers of the society felt assured, from the reports of their Visiting Committee, from information gained through the press and other sources, that the Fair would be one of the best and most largely attended that the society had ever held. In these respects they were not disappointed, and we cannot better set forth some of the prominent features and benefits of the exhibition than by quoting from a leading journal well versed in such matters. We use its own language:

> "The general summing up of opinion is that the exhibition was worthy so fine a country, and a great improvement on any preceding one. The Fair, as an exhibition of mechanical arts and agricultural progress of the State, gives general satisfaction. This year, for the first time, the horse and the race did not attract overwhelming attention. The cattle show occupied the foremost place, and it fairly won that place through distinguished merit. Larger cattle shows there have doubtless been this year—in Illinois, Ohio, and Kentucky—but no better ones anywhere, and we do not believe as good ones in the quality of the stock exhibited. Pure Durham and Devon cattle there are in all the States, and as fine home-bred specimens as the County of Durham, England, can produce. But we may challenge the world to rivalry in the improvement of these breeds, as manifested by the calves, cows, and young California-bred bulls, shown here during the Fair from every part of the State. No other country, trusting to its pastures alone for feed, has up to this time produced calves of four months age, with a monthly increase of one hundred pounds in weight; or bulls of twenty-two months weighing nearly as many hundred pounds. These specimens of native get and growth are an improvement upon the original English stock, and prove at once the intelligent enterprise of our farmers, and the superiority of our country for the breeding of cattle. It is impossible to exaggerate the importance of these triumphs. They are prospectively worth millions to the State; and when the world shall once be advertised of the truth, we may expect an influx of the very best class of farmers from all the States. There is no surer rule by which to estimate the wealth and solidity of a farming country than by the number and excellence of its domestic animals. The richest countries in the world are the cattle countries; the richest counties in England and the United States are those in which the breeding of cattle predominates. The late Fair is a convincing proof that California leads all countries in its capabilities in this line; and we speak of *all* cattle, from horses to goats and sheep. Our Angora goat interest has become a matter of State pride. A few years ago it was a doubtful experiment, struggling for a footing. Now there are seventy thousand goats from three quarters and seven eighths to full blood, and the business is admitted to be more profitable and less fluctuating than the raising of sheep. With reasonable luck and management, we ought, in the next five years, to have over a million of these hardy and useful animals, which may be pastured in the hill lands successfully, where even sheep would starve. The annual fleece of a million seven-eighths blood Angora goats would be worth, at the low average of three and a half pounds each, two million six hundred and twenty-five thousand dollars. We have room enough for ten millions, without curtailment of the area of sheep pasturage."

FINANCIAL.

The receipts of the society for the last year from all sources were forty-five thousand seven hundred and thirteen dollars and fifty-five cents. The expenditures, forty-six thousand eight hundred and five dollars and twenty-six cents. Expenditures greater than receipts, one thousand and ninety-one dollars and seventy-one cents.

IMPROVEMENTS AT THE PARK.

Costly and valuable permanent improvements have been made at the Park in accordance with the necessities of the society and the accommodations of the people at the annual Fairs. Water tanks, new stalls, and a new stand, have been built within the past year, all of a substantial and valuable character, at an outlay of over eight thousand dollars.

If the Fairs continue to increase in interest and the exhibitions grow in dimensions in the future as they have in the past, very great additional accommodations—both at the stock grounds and the Pavilion—will soon become necessary. The grand stand, built the past season, is so planned and constructed as to admit of extension in such a manner as to render it, when extended, one of the best, if not the best, owned by any similar association in the world; and it is the intention of the Board to continue this improvement as fast as the wants and funds of the society will admit.

THE PAVILION MUST BE ENLARGED.

The Pavilion, though greatly enlarged and improved of late, is still inadequate to the wants of the society. The Board was compelled to discourage the full horticultural exhibition that would otherwise have been made at the last Fair, for want of necessary and suitable space. Additional land at the present locality, or a removal to a more convenient portion of the city, will soon become a necessity. The public square between I and J, Ninth and Tenth streets, is in a very good location and much more convenient to the stock grounds, and contains all the ground that will be required for necessary buildings and outside horticultural exhibitions for years to come; and while the acquisition and improvement of it for this purpose would be of great benefit to the society and the State, it would at the same time bring many advantages to the city, and the necessary steps should be taken to secure it.

THE ASSOCIATION'S LIBRARY.

Valuable additions have been made to the library during the year, and the foundation laid and plans adopted for a good and extensive agricultural and scientific library.

CONTEMPLATED IMPROVEMENTS.

These suggested improvements will be brought about in greater or less rapidity as the society receives the encouragement and support of those for whose benefit it was organized and is kept up.

Respectfully submitted,

CHARLES F. REED, President.

I. N. HOAG, Corresponding Secretary.

CONSTITUTION

OF THE

STATE AGRICULTURAL SOCIETY.

CONSTITUTION

OF THE

CALIFORNIA STATE AGRICULTURAL SOCIETY.

ARTICLE I.—NAME.

SECTION 1. This society shall be called "The California State Agricultural Society."

ARTICLE II.—OBJECT.

SECTION 1. It shall be the object of this society to encourage the cultivation of the soil and the general development of all the agricultural resources of this State.

SEC. 2. To foster every branch of mechanical and household arts calculated to increase the happiness of home life.

SEC. 3. To extend and facilitate the various branches of mining and mining interest.

ARTICLE III.—MEMBERSHIP.

SECTION 1. *Annual Members.*—Any person who has, during the year eighteen hundred and sixty-five, or who shall, during this year or any subsequent one, pay into the funds of this society the sum of five dollars, may become a member of the same; such membership to expire on the thirty-first day of the following December.

SEC. 2. *Life Members.*—Any person may become a member for life by the payment of fifty dollars; or, if already a member, by the payment of forty dollars, and shall thereafter be exempt from all dues and assessments.

SEC. 3. *Honorary and Corresponding Members.*—Any person whom the Board shall propose may be elected an honorary or a corresponding member, and shall enjoy, free of charge, all the privileges of the society, except voting and holding office.

SEC. 4. *Privileges of Members.*—Any citizen of this State, being a member of this society, shall be eligible to office, entitled to vote, and enjoy the free use of the library, under the rules of the same, and have free admission, accompanied by his wife and minor children, to all the exhibitions of the society, and shall be permitted to compete for premiums in any or all departments.

SEC. 5. *Expulsion of Members.*—Any member who shall present for exhibition any article or animal which he is not entitled by the rules of the society to exhibit, or who shall attempt to deceive, or be guilty of a breach of good faith toward the society, may be expelled by a vote of two thirds of the members present at any meeting of the society; *provided*, always, that no member shall be expelled unless written notice of the alleged offense shall have been served on him, or left at his usual place of residence at least twenty days previous to the action.

ARTICLE IV.—OFFICERS.

SECTION 1. The officers of this society shall consist of a President and nine Directors, who shall constitute a State Board of Agriculture, five of whom shall constitute a quorum. They shall elect a Treasurer and Secretary, not members of the Board. They may also appoint annually, as officers of the Board, a chemist, a botanist, a meteorologist, a geologist, a metallurgist, an ornithologist, and an entomologist, and define the duties of each. They may appoint such committees on the various departments of agriculture, mining, and manufactures, either generally or for specific purposes, as they may deem important for the best interests of the State, and require such committees to report the results of their investigations to the Board at such times as may be named by them.

SEC. 2. *Duties of President.*—The President shall preside at all meetings of the Board, and of the society; shall have power to call special meetings of the Board when necessary, and at the written request of ten members, may call extra meetings of the society; shall appoint all meetings not otherwise provided for; shall vote only at the election of officers, and in case of a tie; and shall sign all financial and official documents emanating from the society not otherwise provided for. In the absence of the President from any meeting of the Board or society, any Director may be called to the chair, and during such meeting, and for the completion of any business transacted or ordered at the same, shall have the same powers as the President.

SEC. 3. *Duties of Secretary.*—The Secretary shall conduct the correspondence of the society, keeping in a separate book copies of all letters written in the name or on behalf of the society, holding the same free to the inspection of any member of the society, at any regular meeting of the same. He shall also receive and file all letters addressed to the society, holding the same subject to the Board of Directors. He shall attend all meetings of the society and the Board, keeping a full record of the doings of each in a separate book, and shall furnish a copy of the proceedings of each meeting to the Committee on Publication within five days after the close of such meeting. He shall prepare and publish all notices of meetings, shall keep a roll of all standing committees, and call the same (noticing absences) whenever desired to do so by the Chair; shall sign all certificates of honorary and corresponding memberships, and forward the same to those entitled to receive them. He shall keep, in a book prepared for that especial purpose, the name and address of every member; shall prepare and sign all gratuitous or complimentary cards or tickets of admission; shall countersign all diplomas, certificates of merit, etc., awarded by the society, and forward the same to their respective claimants. He shall be ex officio Librarian; shall keep the seal, and all the plates, dies, engravings, etc., belonging to the society, and shall cause to be struck therefrom such medals and impressions as may from time to time be required. He shall have charge of all specimens, models, plants, seeds, books, etc., and arrange, prepare, or distribute the same under the direction of the Board. He shall prepare all reports to be made by the Board to the society, and all reports to be made by the society to the State. He shall receive all moneys due or payable to the society, and pay the same to the Treasurer, taking his receipt therefor; shall hold all bonds filed by officers of the society for the faithful performance of their duty, and all vouchers for every class of expenditure. He shall countersign all drafts ordered by the Board, and all certificates of annual and life membership, and keep an account of the same, in a separate book, as they are issued, and shall, in December of each year, prepare a tabular statement of the receipts and expenditures of the society, according to the law incorporating the same. For which services he shall receive such compensation as the Board shall decide to pay.

SEC. 4. *Duties of the Treasurer.*—The Treasurer shall receipt for all funds at the hands of the Secretary, and shall disburse the same only on the order of the Board, attested by the President and the Secretary. He shall also hold in trust all certificates of stock, bonds, notes, deeds, or other evidences of debt or possession belonging to the society, and shall transfer, invest, or dispose of the same only by direction of the society, or by a written order of the Board. He shall, within ten days after his election, file with the Secretary a bond for the faithful performance of his duties; said bond to be approved by the Board and to be in a sum equal to twice the combined amounts of the funds on hand and the estimated revenue for the year; and shall, at the annual meeting, make to the society a detailed report of all his doings; for which services he shall receive such compensation as the Board shall from time to time decide to pay.

SEC. 5. *Duties of the Board.*—The Board of Managers shall have the general and financial management of all the affairs of the society in the interim of annual meetings. It shall fill all vacancies occurring between elections, and shall make the necessary preparations and arrangements for all meetings, fairs, exhibitions, etc. The Board shall also have power to make its own by-laws (not inconsistent with this Constitution) and arrange the time and place of its own meeting.

ARTICLE V.—STANDING COMMITTEES.

SECTION 1. *Committee of Finance.*—The Committee of Finance shall consist of three (the President and Secretary being two), whose duty it shall be to audit the Treasurer's account, to examine and approve all bills before they are paid, to have general supervision of the finances of the society, and to report their doings in full to the Board whenever called on so to do.

SEC. 2. *Library Committee.*—The Library Committee shall consist of three (the Secretary being one), whose duty it shall be to have the general supervision of the library and cabinet, to make all necessary rules and regulations for the government of the same (said rules and regulations being subject to the approval of the Board), to suggest such means for the safe keeping and enlargement of both the library and cabinet as they may deem expedient, and to make a full report of their doings, together with the state of the department under their charge, at each annual meeting.

SEC. 3. *Visiting Committee.*—The Visiting Committee shall consist of three, whose duty it shall be to visit and examine all farms, orchards, vineyards, nurseries, field crops, mining claims, ditches, mills, etc., which may be entered for competition, and which shall require examination at other times and places than the annual Fair; to award premiums for the same, according to the schedule, and recommend such gratuities as they may deem proper, and make a full report to the Board at least one day previous to the annual meeting.

SEC. 4. *Committee on Publication.*—The Committee on Publication shall consist of three (the President and Secretary being two), whose duty it shall be to contract for and superintend, under the direction of the Board, all printing and publishing necessary for the prosperity of the society.

ARTICLE VI.—DONATIONS AND BEQUESTS.

SECTION 1. All donations, bequests, and legacies to this society, designated by the donors for any particular purpose embraced within the objects of the society, shall be with strict fidelity so applied; and the name of each donor, together with the amount and description of such donation, and the object for which it was designated, shall be registered in a book kept expressly for that purpose.

ARTICLE VII.—MEETINGS AND EXHIBITIONS.

SECTION 1. *Exhibitions.*—The society shall hold an annual Fair and Cattle Show in the City of Sacramento, and may, at its discretion, hold such other exhibitions as it may deem conducive to the interests of agriculture.

SEC. 2. *Annual Meeting.*—The annual meeting shall be held at the Capital of the State, at such time during the month of January in each year as the Board may designate, at which time all the officers from whom reports of the preceding year's service are required shall present the same, and all officers for the ensuing year shall be elected by ballot; and all officers shall continue in office until their successors are duly qualified.

SEC. 3. *Special Meetings, how called.*—No special meeting of the society shall be called but upon thirty days notice in the columns of a newspaper published in each of the Cities of San Francisco, Sacramento, Marysville, and Stockton; nor without a request signed by at least ten members.

SEC. 4. *Proxy Voting.*—It shall not be admissible for any member to vote by proxy in any meeting of this society, or its Board of Managers.

SEC. 5. *Quorum of the Society.*—At any meeting of this society, fifteen members (a majority of whom shall represent counties other than the one where the meeting shall be held) shall constitute a quorum.

ARTICLE IX.—OFFICE AND ROOMS.

SECTION 1. The office, rooms, library, and cabinet of the society shall be permanently located at the Capital of the State.

ARTICLE X.—AMENDMENTS.

SECTION 1. Amendments to this Constitution must be presented in writing at an annual meeting, when, if unanimously agreed to, they shall be adopted; but if there be objection, and a majority consent thereto, they shall be spread upon the minutes and lie over until the next annual meeting, when they shall be read, and if after due discussion two thirds of all the members present vote for the amendments, they shall be adopted and become a part and parcel of this Constitution.

ARTICLE XI.—EFFECT.

SECTION 1. This Constitution shall take effect from and after its passage.

I certify the foregoing to be a true copy of the Constitution of the California State Agricultural Society, as amended by unanimous consent at the annual meeting of the society, held on the twenty-eighth day of January, A. D. eighteen hundred and sixty-nine.

I. N. HOAG, Corresponding Secretary.

COMPILATION OF LAWS

RELATING TO THE

STATE AGRICULTURAL SOCIETY.

A COMPILATION

OF ALL THE LAWS NOW IN FORCE RELATING TO OR AFFECTING THE STATE AGRICULTURAL SOCIETY.

AN ACT

TO INCORPORATE A STATE AGRICULTURAL SOCIETY AND APPROPRIATE MONEY FOR ITS SUPPORT.

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. There is hereby established and incorporated a society to be known and designated by the name and style of the "CALIFORNIA STATE AGRICULTURAL SOCIETY," and by that name and style shall have perpetual succession, and shall have power to contract and be contracted with, to sue and be sued, and shall have authority to have and use a common seal, to make, ordain, and establish, and put in execution such by-laws, ordinances, rules, and regulations as shall be necessary for the good government of said society, and the prudent and efficient management of its affairs; *provided*, that said laws, ordinances, rules, and regulations shall not be contrary to any provision of this charter, nor the laws and Constitution of this State or of the United States.

SEC. 2. In addition to the powers above enumerated, the society shall, by its name aforesaid, have power to purchase and hold any quantity of land not exceeding four sections, and may sell and dispose of the same at pleasure. The said real estate shall be held by said society for the sole purpose of establishing a model experimental farm or farms, erecting inclosures, buildings, and other improvements calculated and designed for the meeting of the society, and for an exhibition of the various breeds of horses, cattle, mules, and other stock, and of agricultural, mechanical, and domestic manufactures and productions, and for no other purposes.

And be it further enacted, That if, from any cause, said society shall ever be dissolved, or fail to meet within the period of two consecutive years, then the real estate held by it, together with all the buildings and appurtenances belonging to said estate, shall be sold as lands are now sold by execution, and the proceeds deposited in the State Treasury, subject to the control of the Legislature.

AN ACT

SUPPLEMENTAL TO AN ACT TO INCORPORATE A STATE AGRICULTURAL SOCIETY, APPROVED MAY THIRTEENTH, EIGHTEEN HUNDRED AND FIFTY-FOUR, AND AMENDED MARCH TWENTIETH, EIGHTEEN HUNDRED AND FIFTY-EIGHT.

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. The general prudential and financial affairs of the society shall be intrusted to a Board of Agriculture, to consist of a President and nine Directors, five of whom shall constitute a quorum.

[Amended section.]

SEC. 2. Said Board of Agriculture shall be elected at a general State Agricultural Convention, to be held at the Capital of the State, in the year eighteen hundred and sixty-three, in the month of March, and in the month of January every year thereafter, to consist of the life members and annual members of the State Agricultural Society and four delegates from each County Agricultural Society within this State, incorporated under the general laws of this State for such corporations, and an equal number from each District Agricultural Society, also incorporated under the general laws of this State for such purposes; said delegates to be chosen at the annual Fair or annual meeting of each such society next preceding the State Agricultural Convention; *provided*, said Convention to be held in March, in the year eighteen hundred and sixty-three, may admit any person or persons representing any of said County or District Agricultural Societies, as the Convention may determine by a majority vote, whether such persons shall have been elected by their respective County or District Societies, as provided in this Act, or not.

SEC. 3. The Board of Agriculture shall, at its first meeting after its election, be divided by lot into three equal portions (omitting the President), one portion to continue in office one year, one portion two years, and one portion three years; one third of the number, together with the President, to be elected at the State Agricultural Convention annually thereafter; the Directors to hold office three years.

SEC. 4. The Board of Agriculture may, in the absence of the President, choose one of its other members temporary Chairman. They shall elect a Treasurer and Secretary, not members of the Board, prescribe their duties, fix their pay; and the said Treasurer and Secretary shall be subject to removal at any time by a majority of said Board.

SEC. 5. The Board of Agriculture shall use all suitable means to collect and diffuse all classes of information calculated to aid in the development of the agricultural, stock raising, mineral, mechanical, and manufacturing resources of the State; shall hold an annual exhibition of the industry and products of the State; and, on or before the first day of January of each year in which the Legislature shall be in regular session, they shall furnish to the Governor a full and detailed account of all its transactions, including all the facts elicited, statistics collected, and information gained on the subject for which it exists; and also a distinct financial account of all funds received, from whatever source, and of every expenditure, for whatever purpose, together with such suggestions as experience and good policy shall dictate for the advancement of the best interests of the State; the said reports to be treated as other State documents are.

SEC. 6. The Board of Agriculture shall have power to appoint a suitable number of persons to act as Marshals, who shall be, from twelve o'clock, noon, of the day previous to the opening of the exhibition until noon of the day after the close of the same, vested with all the powers and prerogatives with which Constables are invested, so far as acts or offenses committed within, or with reference to, or in connection with, the exhibition are concerned.

SEC. 7. The Board of Agriculture may, in its discretion, award premiums for the best cultivated farms, orchards, vineyards, gardens, etc.; *provided*, that said Board shall not audit, allow, or pay an amount exceeding one thousand dollars in any one year for traveling expenses of Visiting Committees in examining said farms, et cetæra; *provided* further, that no person except practical agriculturists shall be appointed on said committees.

SEC. 8. It shall be optional with any to whom a premium is awarded to receive the article named or its equivalent (as affixed) in coin.

SEC. 9. The State Agricultural Society shall have power, at its first annual meeting after the passage of this Act, to make such alterations in its Constitution as shall make it conform to the provisions of this Act.

SEC. 10. All Acts or provisions in conflict with the provisions of this Act are hereby repealed.

SEC. 11. This Act shall take effect from and after its passage.

AN ACT

FOR THE ENCOURAGEMENT OF AGRICULTURE AND OTHER INDUSTRIES, APPROVED MARCH TWENTY-FIRST, EIGHTEEN HUNDRED AND SEVENTY-TWO.

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. There is hereby appropriated, out of any money in the Treasury not otherwise appropriated, the sum of five thousand dollars for the State Agricultural Society, the sum of three thousand dollars for the Bay District Agricultural Society, and the sum of two thousand dollars for each of the following named societies, viz: the Los Angeles District Agricultural Association, the Santa Clara Valley Agricultural Society, the Sonoma and Marin District Agricultural Society, the San Joaquin Valley District Agricultural Society, the Northern District Agricultural, Horticultural, and Mechanical Society, the Upper Sacramento Agricultural Society, the Siskiyou County Agricultural Society, and the Bay District Horticultural Society, and the California Vine Growers' and Wine and Brandy Manufacturers' Association, for each of the years eighteen hundred and seventy-two and eighteen hundred and seventy-three. Upon presentation of the requisition of the President and Secretary of either of the societies above named to the State Controller, the Controller shall draw his warrant on the Treasurer in favor of such society for the amount appropriated to such society, and the Treasurer shall pay the same. The money so drawn by each society shall be used for the purpose of paying premiums for the various agricultural, mineral, mechanical, and manufacturing products of this State, and for no other purpose.

SEC. 2. The Directors of each of the above named societies, except the State Agricultural Society, shall each year report to the State Board of Agriculture the name and Post Office address of each of the officers of such society, on or before the first day of May; and on or before the first day of December of each year they shall report to said Board of Agriculture the transactions of said society, including the list of articles exhibited and premiums awarded; the amount of receipts and expenditures of the year, and the objects for which the expenditures have been made; the new industries inaugurated and new products produced, and any and all other facts showing the development of the resources of the district embraced in such society, which they may deem worthy of such report.

SEC. 3. The State Board of Agriculture shall report annually, on or before the fifteenth day of January, to the Governor of the State, the full transactions of the State Society, including the facts and statistics collected and information gained on the subjects for which it exists; also including the report from each of the above named societies, or so much thereof as said Board may deem of value for publication.

SEC. 4. The Governor shall cause five thousand volumes of said report of the State Board of Agriculture to be printed each year, at the expense of the State, and paid for as other public printing, and delivered to the State Agricultural Society for general distribution.

SEC. 5. All laws or parts of laws conflicting with the provisions of this Act are hereby repealed.

SEC. 6. This Act shall take effect and be in force from and after its passage.

PLANTING SHADE TREES.

To give the following law as much prominence as possible, and at the same time give the efforts made by the Board to give it life and form, the following circular is introduced here. It was sent, as indicated, to all the Boards of Supervisors and the press, and many private individuals of public spirit:

ROOMS CALIFORNIA STATE BOARD OF AGRICULTURE,
SACRAMENTO, October 20th, 1872.

To the Board of Supervisors of the County of ——— :

GENTLEMEN: I am directed by the State Board of Agriculture to call your attention to an Act to encourage the planting and cultivation of shade and fruit trees upon the public roads and highways of this State, approved March thirtieth, eighteen hundred and sixty-eight. The following is a true copy of the Act referred to:

AN ACT

TO ENCOURAGE THE PLANTING AND CULTIVATION OF SHADE AND FRUIT TREES UPON THE PUBLIC ROADS AND HIGHWAYS OF THIS STATE.

[Approved March 30th, 1868.]

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. The Board of Supervisors of any county of this State may, by an order of such Board, to be passed at a regular meeting of such Board and to be entered in the minutes thereof, authorize the planting and cultivation of shade and fruit trees, by persons owning lands in such county, upon the public roads and highways adjacent to such lands.

SEC. 2. The Board of Supervisors may, by order entered upon their minutes, designate the roads or highways upon which such trees may be planted, so describing such road, by reference to places and boundaries, that the same may be readily ascertained. They shall also, in such order, direct the species of trees to be so planted, their age when planted, their distance from each other, and their position with reference to the traveled road, and also all such other rules and regulations as they shall deem proper to secure the proper planting, growth, and protection of such trees, and also to prevent their obstructing the travel upon such road.

SEC. 3. Whenever any person shall plant, upon any public road, in front of land owned by him, shade or fruit trees, in accordance with the provisions of this Act, and also of such rules as the Board of Supervisors may prescribe hereunder, such person so planting such trees shall file with the Board of Supervisors of such county a written statement, setting forth therein the road or places upon which such trees are planted, the number and species of trees thus planted, and the time of planting.

SEC. 4. Four years from and after the date of planting such trees and giving the notice as provided in section third, the person planting such trees, or his legal representative, may present to the Board of Supervisors of such county his statement in writing, verified by the oath of such applicant, setting forth therein the number and species of trees originally planted, when and by whom planted or caused to be planted, and the number then living and in a thrifty condition; and for any willful misstatement contained in such report the party making the same may be prosecuted for the crime of perjury.

SEC. 5. Upon filing such verified statement, the Board of Supervisors of such county shall allow to the party making the same the sum of one dollar for each and every tree so planted and growing thriftily, the same to be audited and paid out of the General Fund of such county as other claims are allowed, audited, and paid.

SEC. 6. Nothing contained in this Act shall be construed to apply to any trees planted before the passage of this Act, or unless planted and cultivated as required by the orders of the Boards of Supervisors.

SEC. 7. This Act shall be in force from and after its passage.

You will see by the above that you are authorized by the Legislature to encourage the planting of trees on either side of every public road in your county. In the opinion of this Board, you could perform no act likely to result in such undoubted and general benefit to your county and people as the placing upon your records the proper orders for carrying into effect the provisions of the above law. We could name many reasons in favor of your action in this respect, but we do not deem it necessary. These reasons will occur to every intelligent mind, and we trust will secure your early and favorable action, so that the tree planting may be initiated and executed to a considerable extent during the approaching planting season. We would suggest, however, that no trees be allowed to be planted nearer than twelve feet from each other; that trees between three and eight years from the seed would be preferable as to age, and would recommend the following varieties as hardy, of rapid growth, and many of them valuable for wood or timber:

Black and Honey Locusts; Black, White, and Fruiting Mulberry; Osage Orange; Native and Eastern Black Walnut; American Chestnut; European, American, and Cork Bark Elm; the different kinds of Maple; the Tulip Tree; Carolina, Lombardy, and Silver Leaf Poplar; different kinds of Ash; the Apple, Pear, Plum, Cherry, Almond, and Fig; Eucalyptus, or Australian Blue and Red Gum; Monterey Pine, Sugar Pine, Yellow Pine, Spruce Pine, Norway Spruce, Balsam Fir, Scotch Pine, European Larch, Monterey Cypress, Italian Cypress, California Redwood, California Laurel, and such other kinds as your Board may deem of value for your county.

Hoping you will take early and favorable action in this important matter, we are, respectfully, etc., by order of the Board,

I. N. HOAG,
Corresponding Secretary.

TRANSACTIONS

OF THE

STATE AGRICULTURAL SOCIETY

FOR

THE YEAR 1872.

OPENING ADDRESS.

DELIVERED BEFORE THE STATE AGRICULTURAL SOCIETY, SEPTEMBER TWENTY-FIRST, EIGHTEEN HUNDRED AND SEVENTY-TWO.

By CHARLES F. REED, President.

Members, and Ladies and Gentlemen:

September has again rolled around, and with it has come our annual industrial exhibitions—our Autumnal jubilees. Already have many of our auxiliary District Societies held their Fairs. Already have the farmers, mechanics, and artisans of these districts, and their sons, wives, and daughters, met together in friendly emulation to compare the products of the year's industry, and compete with each other in carrying off the prizes offered by these societies for the exhibition of the best samples of their products.

At San Francisco, under the auspices of the Bay District Horticultural Association, the orchardists, viniculturists, nurserymen, gardeners, and florists, have held a most successful exhibition. An exhibition which, as a whole, for beauty, taste, and artistic design, has never been excelled if equaled on this coast. At that exhibition were shown samples of the flora of almost every clime and country under the sun. And we say it with pride, as a high encomium on the enterprise and skill of our florists, and as a substantial and unanswerable recommendation of the climate of our State, that nearly all the flowers thus exhibited have been grown in the greatest perfection in the open air. Thus the members of this association, by their enterprise and taste, by their annual exhibitions, are becoming the instructors and benefactors of our people. They are not only teaching us how to adorn and beautify and render attractive our own homes and possessions, whether in town or country, but they are furnishing us the greatest variety of material to do it with. With our favorable climate and soil, at a very small expense to each individual householder, the exhibitions of this association show us what a paradise—what a lovely home—we can make of our State!

At the same time and in the same city, the Bay District Agricultural Association held its great annual stock show. Under the auspices of that association were brought together the finest and purest blooded horses of the district. Horses in whose veins courses the fiery blood of the Arabian steed and the high bred English racehorse; horses for heavy draft, for the truck and the cab; horses for the road, for the carriage, and the farm; and, indeed, horses adapted to every purpose for which that noble animal may be used by man, were there on exhibition. There, too, were assembled the best specimens of the best breeds of cattle of the world. The noble Durham, the beautiful Devon, the milk-giving Ayrshire, the cheese-making Holstein, the fawnlike and butter-producing Alderney and Jersey, were all there represented in their classes. The comparative merits of each individual animal were fully discussed and set forth by their owners and admirers, as also the relative claims to public favor and patronage of each particular breed were examined and studied by the interested spectators. There were also shown at that exhibition all the best and most approved breeds and crosses of sheep, goats, and hogs. Thus was afforded the stock raisers and general farmers of the district an excellent opportunity of learning valuable lessons in every department of stock breeding and raising. Not only this, there were selected by the association men peculiarly fitted by their habits of life and training, as good judges of the different classes of stock exhibited. By these judges all the animals were examined and tested, each in its particular class, and the relative merits of each critically scanned and passed upon, and record of the decisions made and kept to be reported to and preserved by the State Society for publication and future reference.

The following week, under the auspices of the Northern District, and the Santa Clara Valley Agricultural Societies, similar exhibitions were held at Marysville and San José.

Then came the exhibition of the Sonoma and Marin District Society at Petaluma, and the San Joaquin Valley Society at Stockton, and of the Contra Costa Society at Pacheco. At each of these Fairs were shown in competition not only the best specimens of stock of the several districts, but all the various products of the farms, orchards, vineyards, gardens, factories, workshops, and art galleries. At each of these several Fairs is also exhibited any new product that has been introduced, or for which the soil and climate of the district is peculiarly adapted. Each animal and each article exhibited has been examined by competent judges, and its merits compared with each competing animal or article, and record made of the several decisions and awards. It is intended in future, as far as possible, that all the District and County Fairs be held before the State Fair each year; but this year the Los Angeles District Fair, the Upper Sacramento Valley, at Chico; the Siskiyou County, at Yreka; the Solano and Napa, at Vallejo, and some other County Fairs, lately organized, are to be held after the State Fair. But all are required by law to report to the State Society, for publication, the result of the year's industrial operations in their several districts. Thus it will be seen that industrial organizations, embracing nearly all the territory of the State, are now in active coöperation with the State Society. From these organizations, and their coöperation in the future, we are warranted in expecting important assistance in developing the many and varied resources of our State. Although this is the first year in which their coöperation has been to any extent secured and systematized, yet we may point to the magnificent exhibition at the present State Fair as one of the first fruits of such organization and coöperation. If any doubt the efficiency of these industrial associations, in improving the stock of the State, in the introduction and encouragement of new industries, in the agricultural, mechanical, and manufacturing departments, and, in short, in developing the State's resources generally, we ask him to go with us to the stock ground to-morrow morning and witness the grand parade of stock. He will there behold over three hundred head of horses which, taken as a whole, will compare favorably, and I think I can safely say, will surpass in excellence the same number ever exhibited on any Fair ground in the world. If he were to classify these noble animals he would find that over seventy-five are thoroughbreds, with pedigrees unsurpassed by England's best blood, and with turf records, age and training considered, unequaled.

In another class he would find such an array of fast trotters as have never before been exhibited on the soil of any State. Without giving any particular names we may risk the assertion that in that collection there are California born and bred horses which have shown speed that has never been beaten by any rival except by the Iron Horse, propelled by fire and steam.

Without exaggeration we may say that all the other classes of graded, roadsters, carriage, and draft horses are equally as well represented.

In that grand parade he will also find over one hundred and seventy-five head of horned cattle, which, considering the newness of our State, and the length of time our breeders have been interested in the better classes of stock, has been seldom equaled, if ever excelled.

Among the Durhams are individual animals whose relatives, not at all superior to themselves, have been purchased at great prices, and exported to England to reinvigorate and improve the best stock of that far-famed cattle-producing country.

Go then with me to the sheep pens and behold there the finest specimens of French Merinos, Spanish Merinos, Silesian, Cottswolds, Southdowns, and various other breeds and their crosses, that can be found in the world. Every sheep-breeding country on earth has been ransacked by our sheep fanciers with a determination to get the very best that can be found, and if those best are not now in the pens at Agricultural Park, then it is because our sheep men are not good judges of the animal, or because their money would not buy them. In regard to Angora goats, it may be remarked that if any portion of Asia contains purer blood or better individual animals than are now on exhibition at the Park, that country never has been penetrated by ambitious civilized men.

While the swine department is well represented, so far as the quality of the animals and their purity of blood is concerned, it is but proper to remark that there has not been that degree of general interest enlisted in this particular class of domestic animals in this State, their importance in the economy of husbandry demands. But since the importation of good stock and their exhibition at our Fairs has fairly began, we anticipate that the exhibition will suffice to correct this error of our agriculturists.

If the mere sight of this magnificent exhibition of stock does not convince the observer of the important part the industrial societies have played in their introduction into the State, and in maintaining their excellence when here, then we ask him to take another view of the scene, and behold the demonstration as they are passing under the eyes of the committees selected to judge of their respective and comparative merits and award the premium offered by the society. Observe the intense interest and jealousy with which every look, every motion, every expression of each committeeman is watched by the owners and friends of every animal in the contest. Hear the half suppressed mutterings of complaint, and see the lively manifestations of approval as the wide-awake passions of fear and hope are alternately excited. Witness the determined expressions of a deep-seated and almost unfathomable ambition which heaves the breast and controls the actions of each exhibitor, and will not be satisfied until he possesses an animal that will command the highest position and secure the grand sweepstake as the best animal of his kind of any age or breed. Watch how contagious is this feeling—how rapidly it spreads among the vast assemblage of spectators; to what an intense degree of excitement the whole body of the people become wrought up during the deliberations of the committee; how painful is the suspense awaiting the final announcement of the award; and when announced, if just and proper, and in accordance with the real merits of the animal, how general and immediate is the approval—how marked the satisfaction. On the contrary, if the award carries with it the least semblance of prejudice, favoritism, or injustice in any form, how quickly it is condemned; how pointedly it is spurned; with what contempt it is treated. After such an exhibition of stock, and such an exhibition of feeling, who shall say that agricultural societies and their Fairs have no influence upon the industries of the State; upon the character of its stock and its people? Who shall say that the spectators—the great body of the people—who manifest such intense interest in these exhibitions and in their just and honest management, receive no benefits from them? Who shall say these Fairs are not valuable practical agricultural schools of the most utilitarian character? What man or boy, or woman or young lady even, that has witnessed and taken such a deep interest in these scenes, can go away without a better judgment of stock—without a store of useful hints in the science of stock raising, training, and breeding? Not alone are the stock departments of the Fairs of value and interest. Notice the interest and anxiety manifested in the exhibition and trials of agricultural implements. How warmly waged is the contest for superiority among the builders and exhibitors of reapers, mowers, headers, thrashers, plows, harrows, cultivators, and even carts and farm wagons. How many valuable improvements are suggested; how many ingenious and labor-saving inventions are conceived; how much general information is diffused, by one well conducted trial of agricultural implements, attended as they are by such vast concourses of interested farmers, mechanics, and others. And so we might go through each and every department of the exhibition and point out its especial benefits and advantages. We might point to the elegant works of art with which our spacious picture gallery is so artistically and tastefully embellished, and call attention to the many advantages which the study of this gallery offers to those seeking to improve their taste in the fields of portraiture, landscape painting, and historical representation. We might refer with especial pride to the magnificent display of fruit with which our tables are loaded, and note the many valuable varieties which the skill and ingenuity of our nurserymen and orchardists have originated and brought to such a wonderful state of perfection, and show the effect upon the future fruit product of the State which these exhibitions and their valuable lessons in this department are calculated to instill.

We might point to that full and unprecedented display of wines, brandies, raisins, and grapes made on the opposite side of the hall by our valuable coöperative organization—the California Vine Growers and Wine and Brandy Manufacturers' Association—and speak of the powerful influence that association and its exhibitions are destined to exert on that great industry in this State, and calculate the vast amount of wealth their exertions will, in the future, save to our people and the commonwealth; but a gentleman well versed in all the details of that industry, and who speaks for that association, will address you some evening during the Fair especially in its behalf.

We cannot pass from the exhibition before us without a word of commendation for those ladies who have contributed so much to the interest and real merit and value of our Fair. We could no more make a successful Fair without the ladies' work, than society could be made a success without the presence of the ladies themselves. The beautiful wreaths of artificial flowers that adorn these walls, the costly and ingeniously worked specimens of embroidery, the magnificent exhibition of millinery, and other valuable and unique presentations that attract so much and merited attention in those cases, are all the work of the ladies, and are entitled to especial consideration, because they represent so important a feature of our home manufactures. If our heavier manufacturers were in as prosperous a condition, and were equally as well represented here as the ladies have represented their department, they would speak volumes in favor of the prosperity of our State.

There are thousands of other industries which these agricultural societies and their Fairs are fostering and encouraging, and to which it would give us great pleasure to refer had we the time; but we wish to speak of another class of industrial organizations that have been introduced into several of our counties within the past year. We refer to the Farmers' Clubs. We extend to them the open hand of fellowship; we bid them God speed in the great field of industrial improvement, and commend them to the hearty support of every one who would advance his country's prosperity. The objects of these organizations, as expressed in their constitutions, and as developed in their proceedings and discussions, are the dissemination among their members of useful information touching the several branches of agriculture, by the relation of the practical experiences of the members; the introduction and cultivation of new and valuable agricultural products and manufacturing industries; the union and protection of the interest of the husbandmen generally, as against the impositions of commission merchants and middle men, money loaners and grain buyers, railroad and steamboat companies, and owners and charterers of steamers and vessels upon the high seas, plying between our own ports and the ports of the countries where our surplus products must find buyers and consumers. The isolated position of the farmer and his family; their removal from the pleasures and advantages of frequent social intercourse with their friends and neighbors, and from easy access to lectures, libraries, and other facilities for social and intellectual improvement, are among the most serious objections to a farmer's life and residence in the country. Hence it is that so many of the farmers' sons and daughters become tired of their rural homes and seek more active and agreeable employment in the towns and cities. To counteract this tendency of the young to leave the country; to induce greater sociability among the farmers and their families; to give greater scope to intellectual improvement; and to induce emulation in the cultivation of the farm, the adornment and beautifying of the home, and to render country life more desirable and attractive generally, we know of no plan promising better results than the organization and proper management of Farmers' Clubs in every agricultural center throughout the State. Let the farmers and their families hold their weekly meetings; cultivate friendly and social relations; discuss the best modes of keeping up the fertility of their lands; the best system of rotation of crops as adapted to the peculiarities of this State; the varieties of fruits most profitable to cultivate for home consumption, and for supplying the foreign markets; let them institute systems of experiments with new products, and record and compare notes as to each other's success; and above all, let them supply their houses with well selected books and libraries of a miscellaneous and interesting character, not forgetting the standard works upon agriculture and political economy; and last, but not least, let every farmer's house be supplied with one or more good and reliable agricultural journals, published in our own State, treating of all the departments of rural industries, and keeping up with the wants and exigencies of the times. Thus may the farmer's home be rendered more cheerful and happy, his family more intelligent and contented, and his calling more independent and profitable.

But however much we may improve and diversify our agriculture, it is evident that for a long series of years we shall continue to be large exporters of wheat. In order, therefore, successfully to compete with other wheat-exporting countries, and render this branch of agriculture self-sustaining and profitable, we must, in the first place, adopt a system of cultivation by which, while we materially reduce the cost of production, we can at the same time keep up the fertility of the soil. Our present mode of shallow cultivation, considered in connection with the expense and difficulty of adding to the soil the necessary fertilizing ingredients, is very unsatisfactory, and if continued the day is not far distant when our lands will become so far exhausted that the value of our crops will fall below the necessary expense of our present costly system of cultivation. As a general thing our American mechanics and farmers have not only kept up with those of other countries, but have taken the lead in the invention and use of labor-saving machinery.

Our mowers, reapers, and headers are unequaled; our steam thrashers and grain separators are unsurpassed for the rapidity and excellence, as well as for the economy, of their work; our gang-plows and cultivators are models of perfection for the cultivation of our soil, so long as we are content to propel them by the inefficient and costly power obtained by the use of horses, mules, or cattle. While we have been among the first to successfully apply steam in the navigation of the rivers and the high seas, and thus bring the commerce of the world into our seaports, and build up our cities and enrich our people; while we have excelled in railroad engineering, and have laid the iron track over mountains, across rivers and deserts, and have, by the use of steam, almost annihilated the distance across the continent, and have thus made our country the high road of the commerce of the principal civilized nations of the globe; while we have successfully applied steam in the opening and working of our vast mines of precious metals, in crushing the quartz and other base materials in which those metals are imbedded, and in separating and perfecting them for the use of mankind; and while steam is our great motive power in all our varied manufacturing operations, it must, however reluctantly, be admitted, that in the application of steam to the cultivation of the soil, we are most sadly behind many other nations of the earth, whose agriculture, when considered in comparison to that of our own, is of but slight importance. The agriculture of England is but secondary to that of her manufactures and commerce, and her grain growing capacity is far less than that of our own State; and yet England, with her small fields, her multiplicity of crooked fences, her uneven surfaces, and with nearly all her farmers working rented lands, and comparatively laboring under many other disadvantages for steam cultivation which do not exist in our State, has now over one thousand steam plows in active operation, and the system of steam cultivation has been an established success there for the past twelve or fifteen years. Germany and France, with the same difficulties to overcome as England, have, years since, introduced the steam system with success; and the steam plow is now successfully at work on the high plains of the Argentine Republic of South America, and in the low lands of the Valley of the Nile.

From all these countries, the reports, with a wonderful unanimity, go to prove that while the steam system reduces the cost of cultivation from fifteen to twenty-five per cent below that of animal cultivation, the product is largely increased in all cases, and in some as much as thirty and fifty per cent.

In the reports of the Royal Agricultural Society of England for eighteen hundred and sixty-seven, we find the following statement of a committee appointed to investigate this subject:

> "In nearly all the cases reported, it will be seen that the expenses of cultivation are very much reduced, and yet that a larger amount of produce is said to have been realized. We may state as our general conclusion, that steam tackle, whether of Fowler, Howard, Smith, or other makers, is now so far perfected and settled in form and details, that it may be classed among old established farm machinery, and no longer among the novelties of the day."

In a discussion by the Royal Agricultural Society, it was settled that the advantage of steam cultivation amounted, on average soils, to at least eight bushels per acre in the increased product of the grain crops; that the arable culture is by means of it annually becoming cheaper and better; that the drainage of clay soils is facilitated; and that the system, wherever it is adopted, is improving all the classes interested in agriculture.

My own conviction, formed from a careful examination of the whole subject, is, that by the general introduction and use of the steam plow and cultivator, the cost of production of the great crop of the State, taking the increased product per acre into account, may be reduced at least twenty-five per cent.

Again, we may materially reduce the expense of marketing our grain if we can, by any means, get rid of the necessity of sacking it. The unprecedented large grain crop of the present season presents this subject most vividly to the minds of the producers, and draws heavily upon the contents of their pockets. In the fore part of the season it was estimated that the wheat crop would aggregate twenty million bushels, but as the harvest has advanced, it has become apparent that this estimate is far below the true product. It is now probable that the yield will rather exceed than fall short of thirty million bushels, or nine hundred thousand tons.

At the average cost of sacks this year, to sack this quantity of grain imposes an expense on the producers of two million four hundred and thirty thousand dollars. This tax is burdensome and unnecessary, and ought by all means to be dispensed with. This can be done if those interested determine it shall. There is no good reason why California wheat cannot be handled as the wheat in the Eastern States is handled, and the sacks in which it is delivered to the buyer emptied and returned to the seller. There is no good reason why wheat cannot be shipped in bulk from Vallejo, Oakland, San Francisco, or any other port on the Pacific coast, to Liverpool, as well as from Chicago, New York, or any other port on the Atlantic seaboard. Our wheat is drier, plumper, and is always delivered in better shipping condition than any wheat produced east of the Rocky Mountains. Vessels can be prepared to receive wheat in bulk to double Cape Horn as well as to cross the Atlantic, and the percentum of insurance need be increased only in the same proportion here as there.

But how shall we get rid of the custom that compels the sacking? We answer, by combination. Let the grain growers say to the dealers—in a manner that will show that they mean what they say, and will keep their word—"our next crop of wheat will be dêlivered to those who will receive it in bulk, and to none others," and before the next crop is harvested, all our principal purchasing depots will be furnished with elevators and provided with all the facilities for handling grain in bulk with which the eastern grain-buying cities are provided. When once so provided, the farmers will not only be relieved from the sacking expense, but the actual expense of handling and shipping the grain will be reduced in the proportion that the labor can be performed cheaper by steam machinery than by man power. Let our Farmers' Clubs bring their organizations to bear upon this subject in a proper manner, and the result will be attained. In proportion as we lessen the cost of producing and marketing a product, just in that proportion we increase the profits of the produce or decrease the cost to the consumer. Therefore, it is just as much the interest of the farmers of this State to secure cheap transportation for their surplus grain from their farms to the door of the consumer, as it is to procure cheap labor, or increased facilities in its production. Are the farmers of this State enjoying the benefits of this plain and simple proposition? Are the freights from their farms to England, to China, to Japan, and to other countries which are consuming our wheat, fair and reasonable, or are they unfair and extortionate? To answer this question we will mention a few facts: twelve years ago, and from that time until eighteen hundred and seventy, the freight on wheat—by boat—from Chico, Butte County, to San Francisco, was five dollars per ton; in eighteen hundred and seventy, it was increased to five dollars and fifty cents; in eighteen hundred and seventy-one, to six dollars, and this year it is six dollars and fifty cents. Until this season, the freight on wheat from Grayson, on the San Joaquin River, to Stockton, was one dollar per ton; this year it is increased to two dollars. We might accumulate facts to prove that it costs more to move grain from nearly every wheat-growing district in the interior of the State to San Francisco, than it did four years ago, and that increased expense is generally about in the proportion of the instances named. Again, in eighteen hundred and seventy-one, the freight on wheat from San Francisco to Liverpool, was on an average about ten dollars per ton, while this year—since it became apparent that we were going to have a large surplus, and that that surplus would be wanted in England—the freight has ranged at about twenty-five dollars per ton. Why this increase of freight on our inland routes, where the facilities for cheap conveyance are increased each year? and why this increase of freight on the ocean in the face of the fact that the recorded tonnage of the world has within the past year been considerably increased? If, in eighteen hundred and sixty-nine it was worth five dollars a ton to transport a ton of wheat from Chico to San Francisco, it is certainly worth no more now, and the extra charge of one dollar and fifty cents per ton, is simply so much unnecessary expense to the farmer for conveying his wheat that far towards Liverpool—his market.

If it was worth but ten dollars a ton to ship wheat from San Francisco to Liverpool in eighteen hundred and seventy-one, it is worth but that now, and the excess of fifteen dollars per ton is so much more unnecessary expense to the farmers of this State in marketing their grain. It is estimated that we will have seven hundred thousand tons of wheat to spare, and if we were to ship the entire surplus to Liverpool, this unnecessary tax on the grain producers of the State will foot up to ten million five hundred thousand dollars. Throwing out of the estimate the unnecessary additional expense of the inland transportation, which must be several million dollars, but adding the sack tax, and the legitimate profits on the grain crop of the State this year is reduced, below what the farmers should have realized, twelve million nine hundred and thirty thousand dollars. Now, while we shall not join in the common and ineffective howl against the men and associations of men that wrongfully oppress the farmers, and turn this large sum of money from the pockets of the producers to their own, we would refer to the old and true proverb that "the Lord helps those that help themselves." We would recommend the farmers of the State to act on this proverb. Look about and see if you have not the power and means to avoid this heavy oppression in the future. This is not alone a drag on the agriculture, but every other industry of the State feels indirectly the oppression, and hence every other industry—the manufacturer, the mechanic, and the laboring man—are all interested in averting the evil. But how is it to be done? Unity of action on the part of those interested—business tact, energy, and perseverance—and a very large amount of capital that will be satisfied with a small amount of annual interest; all these must be secured, and the perfect coöperation of all will be necessary. With proper security the cheap capital can be obtained. Ample and undoubted security will give us command of the keys to the coffers of England and Germany at from three to four per cent per annum. What then shall be the machinery by which those coffers shall be opened and the money placed at our command? It is suggested that the farmers and mechanics of the State might organize a central bank, say at San Francisco, with branches in every centrally located town in the State. Let the lands of the farmers and stock men, the workshops and factories of the mechanics and manufacturers, be pledged to these banks as security for the money to be borrowed. Through these banks so organized, and with the capital so obtained, the crops can be handled, the vessels chartered, and all the details of carrying on the financial operations connected with the wants and necessities of the industries of the State can be managed in the direct interest of those industries themselves. The great natural arteries of our inland commerce can be supplied with steamers for moving the surplus produce of the country to the seaports at the least possible expense. Railroads can be built penetrating every necessary locality in the State to accommodate the people and the wants of trade. All the grain centers can be supplied with the necessary warehouses, elevators, and other facilities for storing and handling grain in the cheapest and best possible manner.

Through this medium, too, our manufactories will be built up, immigration will be encouraged, and the development of all the State's resources will receive an impetus heretofore unknown, and never to be expected while the whole capital of the country is under the control of a few individuals, who do not and who cannot be induced to prefer the interest of the public to that of their own. We appeal not to the feelings or passions of the people, but rather to their interests, their good judgment and business sense, when we tell them that these are subjects worthy the serious consideration of the best minds of the country, and that in the proper solution of these subjects rests the vital interests of every farmer, every mechanic, every manufacturer, and, in short, of every material industry of the State.

Having thrown out these few hints, we leave the matter in the hands of the intelligent representatives of these industries, while we call your attention to a subject well calculated to enlist the State pride and stimulate the exertions of every person who claims California as his home—a subject which, in fact, should arouse the patriotism and excite the national pride of every true American citizen. I refer to the first grand centennial celebration of our national birthday, the fourth of July, eighteen hundred and seventy-six. On that eventful day it has been decided by our national government to inaugurate at Philadelphia a grand exhibition of our national industries. On that great occasion the whole people will come up to the spot where the nation was born, bearing in their hands the fruits of a hundred years' labor, to lay upon the altar of their country as the best and most convincing proof of the success of republican institutions, and the wonderful energies of a people governing themselves and controlling their own political and material destinies. At that grand exhibition each State will be assigned a separate and distinct department in which to display the evidences of her natural wealth and the samples of her industries.

The question I now wish to ask of the people of our State is, what position shall California occupy among her sister States on that great national occasion? Shall our mines of coal, of iron, of quicksilver, of lead, of copper, and other base metals and minerals, and of gold and silver; shall the wealth of our forests, rivers, lakes, and seas; shall our agricultural riches; our grains, and fruits, and vegetables; the products of our dairies and vineyards; of our flocks and herds; our cotton, hops, and silk; shall evidences of the enterprise and ingenuity of our mechanics, samples of our mining machinery and agricultural implements, the products of our workshops and factories; shall all these and other evidences of our inexhaustible resources be properly and creditably represented on that great occasion? I need not appeal to the public spirit, the energy, and known enterprise of our people to embrace an opportunity like this. I know they will be equal to the occasion, and will, if the proper medium for the concentration and direction of their efforts be offered, do honor to themselves and the Empire State of the Pacific coast. The organization of the State Agricultural Society, and all the energy of its officers and facilities it can command, are hereby tendered to forward and direct this great enterprise.

And, members of the society, gentlemen and ladies, and our guests from all quarters, thanking you for the many honors you have done me in the past, for the patient and kind hearing you have given me this evening, I bid you all a hearty welcome to this, California's great annual jubilee, which I now declare fully opened and inaugurated. Enjoy its pleasures, profit by its lessons, and excuse the errors of its managers.

FINANCIAL REPORT

OF THE

STATE AGRICULTURAL SOCIETY

FOR

THE YEAR 1872.

Date.	On what account.	Amount.
1872.	RECEIPTS.	
January 4	Robert Allen, rent	$420 00
January 25	Memberships	395 00
January 26	Old pipe sold	16 10
"	Life membership—J. D. Carr	50 00
Feb. 1	Ladies of Grace Church for refreshment room	20 00
Feb. 8	Robert Allen, rent	200 00
March 5	Robert Allen, rent	400 00
April 6	Robert Allen, rent	400 00
May 13	Robert Allen, rent	400 00
June 1	Robert Allen, rent	400 00
July 2	Robert Allen, rent	400 00
July 9	State warrant	5,000 00
August 6	Robert Allen, rent	400 00
"	Entrance money from A. Maillard	75 00
"	Jno. Boggs, entry "Marysville Queen"	100 00
August 22	B. E. Harris, entry "Regulator," interest and penalty	175 00
Sept. 7	G. W. Moulthrope, entry of "American Maid"	150 00
"	Robert Allen, rent	400 00
Sept. 17	H. P. Wood, entry to single scull race	10 00
"	C. H. Sisson, entry "Stockton Maid"	150 00
Sept. 18	A. Curtis, bar privilege	185 00
"	Killip & Covey, pool privilege	2,000 00
"	G. W. Moulthrope, entry "General Reno"	75 00
"	J. C. Tyler, entry "Nettie Brown"	40 00
"	A. C. St. John, entry "Demoret"	40 00
"	John Plummer, entry "C. F. Reed"	75 00
Sept. 19	Capital Boat Club, entry boat race	25 00
"	S. B. Whipple, entry "Ajax"	75 00
"	E. Mills, entrance to purse No. 5	225 00
"	E. Mills, entrance to purse No. 6	300 00
"	Third money in purse No. 3 returned	72 00
"	Third money in purse No. 4 returned	72 00

Date.	On what account.	Amount.
Sept. 19....	Undine Boat Club, entry	$25 00
"	Pioneer Boat Club, entry	25 00
"	E. Nelson, entry to single scull race	10 00
"	Richard Landers, entry to single scull race	10 00
"	William Daley, entry to single scull race	10 00
"	Ticket receipts at Park	2,656 50
"	Ticket receipts at Pavilion	1,981 50
Sept. 20....	George Treat, entrances	175 00
"	Third purse in purse No. 5 returned	72 00
"	S. B. Whipple, entrance	650 00
"	William Bihler, membership	5 00
"	Ticket receipts at Park	1,497 50
"	Ticket receipts at Pavilion	1,272 00
Sept. 21....	Third money in purse No. 7 returned	72 00
"	A. F. Smith, entry	168 00
"	I. Eckarts, entry	75 00
"	Willis Hull, entry	75 00
"	Theodore Winters, entry	75 00
"	L. J. Rose, entry	75 00
"	A. Musick, entry	75 00
"	Second money in purse No. 8 returned	168 00
"	Third money in purse No. 8 returned	72 00
"	Farragut Boat Club, entry	25 00
"	Ticket receipts at Park	1,181 00
"	Ticket receipts at Pavilion	1,042 50
Sept. 23....	A. Curtis, balance of bar privilege	40 00
"	J. H. Swain, entry	60 00
"	James S. McCue, entry	75 00
"	J. T. Stratton, membership	5 00
"	D. Dennison, entry	80 00
"	John Daniels, entry	60 00
"	A. F. Smith, entry	75 00
"	Ticket receipts at Park	2,025 50
"	Ticket receipts at Pavilion	1,343 00
Sept. 24....	John Boggs, entry	100 00
"	J. M. Hanks, entry	75 00
"	Captain Harris, entry	100 00
"	Barney Rice, entry	100 00
"	Pete Brandon, entry	100 00
"	L. J. Rose, entry	100 00
"	John Hall, entry	100 00
"	John Tyree, entry	50 00
"	Ticket receipts at Park	1,983 00
"	Ticket receipts at Pavilion	788 50
"	J. C. Tyler, entry	100 00
Sept. 25....	George Treat, declaration	50 00
"	John Tyree, balance of entry	50 00
"	James S. McCue, entry	75 00
"	H. W. Seale, entry	75 00
"	Ticket receipts at Park	1,965 00
"	Ticket receipts at Pavilion	829 00

Date.	On what account.	Amount.
Sept. 26.....	Third money in purse No. 16 returned	$96 00
"	Third money in purse No. 17 returned	57 60
"	Third entry on "Dexter"	75 00
"	Ticket receipts at Park	2,052 50
"	Ticket receipts at Pavilion	887 50
Sept. 27.....	G. W. Moulthrope, entry	75 00
"	E. M. Skaggs, entry	150 00
"	Hanchet, entry	200 00
"	J. M. Hanks, entry	75 00
"	A. Musick, entry	30 00
"	James S. McCue, entry	100 00
"	Barney Rice, entry	100 00
"	D. Dennison, entry	70 00
"	John Boggs, entry	75 00
"	A. F. Smith, entry	192 00
"	H. W. Seale, entry	175 00
"	D. Dennison, entry	100 00
"	Ticket receipts at Park	1,976 50
"	Ticket receipts at Pavilion	820 50
Sept. 28.....	Soda privilege	50 00
"	William Fleming, life membership	50 00
"	T. McIntosh, entry	75 00
"	"Longfellow's" entry	60 00
"	Cider privilege	63 50
"	A. F. Smith, balance of entry	215 00
"	Memberships from January 24th to date	150 00
Oct. 10......	Robert Allen, rent	460 00
Oct. 15......	A. C. St. John, entry	120 00
"	Ladies of First Baptist Church for refreshment rooms	81 50
"	Fulda & Sons, freight and drayage	14 75
"	Keller, freight	1 00
"	Bradley & Rulofson, freight	4 60
"	Ladies of First Baptist Church, balance	20 00
"	Theodore Winters	60 00
Nov. 9......	Robert Allen, rent	400 00
"	Jute Manufacturing Co., freight and membership	5 50
Nov. 21......	J. S. Woods, entry	60 00
Dec. 4......	J. L. Eoff, entry	300 00
"	Oakland News, entered twice	12 00
Dec. 9......	Robert Allen, rent	500 00
Dec. 13......	J. L. Eoff, entry	125 00
"	Premium entered twice to William Fleming	65 00
Dec. 14......	John M. Duncan, rent new stand	600 00
"	Season tickets to reserved seats	216 00
"	Fine from D. Dennison	10 00
1873. Jan. 2......	Cash received from A. A. Wood, rent	460 00
	Total	$46,128 55

Date.	On what account.	Amount.
1872.	CASH PAID TO TREASURER.	
January 4	R. T. Brown, Treasurer, as per receipt	$420 00
February 1	R. T. Brown, Treasurer, as per receipt	395 00
February 8	R. T. Brown, Treasurer, as per receipt	200 00
February 8	R. T. Brown, Treasurer, as per receipt	75 00
March 6	R. T. Brown, Treasurer, as per receipt	400 00
April 6	R. T. Brown, Treasurer, as per receipt	400 00
May 13	R. T. Brown, Treasurer, as per receipt	400 00
June 1	R. T. Brown, Treasurer, as per receipt	400 00
July 2	R. T. Brown, Treasurer, as per receipt	400 00
July 9	R. T. Brown, Treasurer, as per receipt	5,000 00
August 12	R. T. Brown, Treasurer, as per receipt	400 00
August 17	R. T. Brown, Treasurer, as per receipt	75 00
August 19	R. T. Brown, Treasurer, as per receipt	100 00
August 26	R. T. Brown, Treasurer, as per receipt	175 00
Sept. 6	R. T. Brown, Treasurer, as per receipt	150 00
Sept. 9	R. T. Brown, Treasurer, as per receipt	400 00
Sept. 16	R. T. Brown, Treasurer, as per receipt	16 10
Sept. 19	R. T. Brown, Treasurer, as per receipt	2,575 00
Sept. 20	R. T. Brown, Treasurer, as per receipt	5,487 00
Sept. 21	R. T. Brown, Treasurer, as per receipt	3,671 50
Sept. 23	R. T. Brown, Treasurer, as per receipt	3,103 50
Sept. 26	R. T. Brown, Treasurer, as per receipt	10,404 00
Sept. 27	R. T. Brown, Treasurer, as per receipt	3,168 60
October 2	R. T. Brown, Treasurer, as per receipt	443 00
October 4	R. T. Brown, Treasurer, as per receipt	4,381 75
October 24	R. T. Brown, Treasurer, as per receipt	681 50
October 31	R. T. Brown, Treasurer, as per receipt	60 00
Nov. 9	R. T. Brown, Treasurer, as per receipt	400 00
Dec. 4	R. T. Brown, Treasurer, as per receipt	372 00
Dec. 9	R. T. Brown, Treasurer, as per receipt	500 00
Dec. 14	R. T. Brown, Treasurer, as per receipt	125 00
Dec. 16	R. T. Brown, Treasurer, as per receipt	600 00
Dec. 31	R. T. Brown, Treasurer, as per receipt	140 05
Dec. 31	R. T. Brown, Treasurer, as per receipt	154 55
1873.		
January 2	R. T. Brown, Treasurer, as per receipt	460 00
	Total	$46,133 55

Date.	On what account.	Amount.
1872.	EXPENDITURES.	
Jan. 2	Geo. C. Shreve & Co.'s bill	$560 00
"	Daily Record	7 00
"	I. N. Hoag, salary for December	150 00
Jan. 4	State and county taxes	54 34
"	Pacific Quartz Roofing Company, for repairing roof of stand	75 00
"	Gas bill	6 60
"	Miss Fannie Smith, premium	10 00
"	M. L. Reynolds, premium	5 00
"	Robert Beck, salary for December	150 00
"	James Parsons, premium	3 00
Jan. 11	D. Gardner, wood	8 50
Jan. 12	R. B. Sweetland, premium	10 00
Jan. 13	Mattison & Williamson, premium	45 00
"	F. B. Stevens, pruning shears	7 00
"	Whittier, Fuller & Co., bill	27 00
"	Samuel Jelly, bill	159 00
"	H. S. Crocker, bill	19 00
"	A. Flohr, bill	4 00
"	James Anthony & Co., bill	10 00
"	Huntington, Hopkins & Co., bill	5 06
"	Dewey & Co., bill	6 00
"	A. A. Flint, bill	5 00
"	C. H. Smith, sawing wood	2 50
"	J. Kelly, sawing wood	3 50
"	Telegraphing	1 25
"	Envelopes	1 00
"	Fixing clock	1 50
"	Putting books in case	50
"	Post Office, bill	3 00
"	Wachhorst, bill	37 50
"	Fred. Werner, one share Union Park stock	100 00
Jan. 17	J. S. Finch, premium	25 00
"	William Crump, bill	2 50
Jan. 22	Expenditures, as per bill	8 00
Jan. 25	George W. Mayberry, trimming trees, repairing fence, etc	20 00
"	Col. Younger, traveling expenses, etc	150 00
Jan. 27	E. M. Smith, premium	20 00
"	Postage stamps	10 00
"	Miss Sallie Russell, premium	5 00
Jan. 29	John N. Andrews, engraving	84 80
"	Michael Crone, labor at Park	45 00
Jan. 30	Robert Beck, salary	145 00
Jan. 31	George W. Mayberry, balance of labor at Park	47 50
"	I. N. Hoag, salary	145 00
Feb. 5	Gas bill	2 40
"	Hauling block and tackle, etc., from Park	75

Date.	On what account.	Amount.
Feb. 15	Chinaman, mending chairs	$5 00
"	Wells, Fargo & Co., envelopes	2 00
Feb. 28	Henry Freeman, bill	6 50
"	D. Gardner, wood	10 00
"	P. A. Espina, filling diplomas	40 50
March 2	C. T. Jennings, arranging books and papers	16 50
"	M. Hanrahan, wood	10 00
March 4	G. W. Mayberry, painting and varnishing office and cases	24 00
"	I. N. Hoag, salary for February	125 00
March 6	Robert Beck, salary for February	125 00
March 7	John W. Ford, taking up carpet	1 00
"	Wells, Fargo & Co., envelopes	2 00
"	Telegrams	50
March 13	J. S. Harbison, premium	5 00
March 21	Brittan, Holbrook & Co., bill	89 00
March 20	James McKim, repairing engine	13 25
"	Geuttenberger & Lienale, engine cover	22 96
March 23	Peter Chatterton, carpentering	30 00
April 1	Gas Company, bill	3 60
April 4	Robert Beck, salary for March	125 00
April 5	Silverstein & Co., bill, silverware	313 50
April 8	American Herd Book	80 96
April 10	William Johnson, premium	10 00
April 12	Bancroft & Co., American Encyclopedia	117 00
"	Express charges on same	1 00
April 26	Express charges on Herd Book	8 25
"	Telegraph charges to Col. Younger	2 00
April 29	Daily Record, advertising bill	6 00
May 3	Postage stamps for premium circulars	36 20
May 4	Myers & Gummow, premium	10 00
"	Frank Prentice, bill	10 00
"	William Crump, bill	2 50
"	William Chadderton, bill	2 50
May 13	Robert Beck, salary for April	125 00
"	Express charges on goblets	50
"	Two-cent postage stamps	2 50
"	Three-cent postage stamps	9 00
"	William B. Hunt, seven stalls	49 00
May 15	Peter Chatterton, balance of carpenter work	18 00
"	I. N. Hoag, salary for March and April	250 00
"	C. T. Jennings, bill	28 00
May 18	Samuel Fleming, labor at Park	6 25
May 21	City taxes	314 50
June 1	H. S. Crocker, bill	21 08
"	Robert Beck, salary for May	125 00
June 7	I. N. Hoag, salary for May	125 00
June 10	National Trotting Association assessment	72 00
June 21	Grading H street, Twentieth to Twenty-second street	108 80

Date.	On what account.	Amount.
June 29	Hasselgren & Wilson, bill	$25 00
"	Wells, Fargo & Co., charges on cards, rules	3 50
July 3	Wells, Fargo & Co., charges on new rules	3 10
"	B. R. Sweetland, bill	2 70
"	Gas Company, bill	1 20
"	Charges for sending reports to District Societies	50
"	Robert Beck, salary for June	125 00
"	Post Office, bill	8 00
"	I. N. Hoag, salary for June	125 00
"	Telegram to and from Charles F. Reed	80
"	Sending posters	50
"	Postage stamps ($11 30 currency)	10 00
"	Telegram to Colonel Younger	1 25
July 17	Edwards & Co., bill	33 00
"	F. Foster, bill	10 00
July 27	H. Wachhorst, bill	17 00
August 3	H. T. Holmes, bill	4 00
August 10	Whittier, Fuller & Co	2 00
"	Insurance on stand	210 00
August 12	Nichols, Falvey & Co., bill	10 00
"	Robert Beck, salary for July	125 00
"	I. N. Hoag, salary for July	125 00
"	Telegram to James McCord	55
"	Telegram to John M. Duncan	25
August 23	Postage stamps ($10 currency)	8 85
"	Sent National Association, B. E. Harris, ten per cent penalty	15 00
Sept. 2	Gas Company, bill	3 00
Sept. 5	T. L. Chamberlain, premium	10 00
Sept. 6	Telegram from President Reed	1 00
"	Express charges, sending reports	50
Sept. 7	I. N. Hoag, salary for August	125 00
"	Peter Chatterton, on account, carpenter	20 00
"	C. W. Ottis, on account, carpenter	10 00
"	F. Johnson, on account, carpenter	10 00
Sept. 9	Robert Beck, salary for August	125 00
"	Telegram from President Reed	25
"	Wells, Fargo & Co., envelopes	1 00
Sept. 13	Matches	50
Sept. 15	Daniel St. C. Stevens, abstract	60 00
Sept. 17	Express charges on entrance of "Stockton Maid"	50
"	Express charges on entry to single scull race	25
Sept. 18	Telegram to Alpers	55
Sept. 19	Wells, Fargo & Co., envelopes	2 50
"	Car tickets for errand boy	25
"	I. N. Hoag, on account of salary	50 00
"	Purses	1,500 00
"	Steve Eddington, carpenter	15 00
"	T. M. Reed, labor	15 00
"	Car tickets for errand boy	50

Date.	On what account.	Amount.
Sept. 20.....	Wells, Fargo & Co., charges	$ 80
“	Coffey's order to William P. Coleman	1,000 00
“	Purses	1,750 00
“	A. C. St. John, entry	40 00
“	Warren & Co., advertising	20 00
Sept. 21.....	Purses	1,600 00
“	E. W. Cassidy, carpenter	20 00
“	Charles Ottis, labor	61 50
“	A. Musick, third purse of purse No. 5	72 00
Sept. 23.....	Purses	2,100 00
“	Car tickets for errand boy	50
“	N. L. Drew & Co., on Coffey's order	2,000 00
Sept. 24.....	Purse No. 13	1,000 00
“	J. S. Williams, on account	20 00
“	Colored man, messenger and car tickets	1 00
“	Wells, Fargo & Co., envelopes	2 50
Sept. 25.....	John Jenkins, carpenter, Park	40 00
“	G. G. Paine, carpenter, Park	30 00
“	Charles Saxon, carpenter, Park	48 00
“	Purses Nos. 14 and 15	1,750 00
Sept. 26.....	Purses Nos. 16, 17, and 18	1,900 00
“	Boat purses	350 00
Sept. 28.....	L. Peire, premium	330 00
“	Cannon & Staples, premium	30 00
“	J. C. Tyler, entrance to purse No. 2 returned	40 00
“	Charles Alpers, music	702 00
Sept. 29.....	N. Gilmore, premium	90 00
Sept. 30.....	G. W. Martin, hay	408 50
“	R. S. Thompson, premium	170 00
“	Nathan Coombs, premium	225 00
“	J. H. Johnson, premium	38 00
“	J. H. Johnson, labor	30 00
“	J. A. Evans, premium	25 00
“	John Cooney, premium	75 00
“	M. Nicholson, premium	30 00
“	J. M. Dudley, premium	30 00
“	G. McWain, premium	100 00
“	Charles Murphy, premium	30 00
“	R. Ashburner, premium	50 00
“	William Fleming, premium	65 00
“	William Hamilton, premium	295 00
“	John Hall, premium	370 00
“	G. N. Sweezy, premium	95 00
“	J. B. Hobson, premium	20 00
“	S. L. Monday, premium	30 00
“	Jos. Gluckauf, premium	70 00
“	J. R. Rose, premium	275 00
“	Joshua Reeves, premium	40 00
“	L. A. Upson, premium	30 00
“	Colonel Younger, premium	220 00
Sept. 30.....	Purse No. 20	$750 00
“	W. Keith, premium	120 00
“	Thomas O'Brien, premium	50 00
“	M. Kraker, premium	65 00
“	D. De Bernardi, premium	30 00
“	E. F. Aikin, premium	99 00
“	Mrs. S. M. Hoover, premium	40 00
“	George Verinder, premium	30 00
“	C. M. Taylor, premium	20 00
“	James Mee, premium	40 00
“	C. Clark, premium	20 00
“	W. M. Haynie, premium	65 00
“	Alexander Ely, premium	40 00
“	C. P. Marsh, premium	50 00
“	John H. Jackson, premium	20 00
“	James Moore, premium	50 00
“	G. R. Vernon, premium	30 00
“	R. M. Sparks, premium	100 00
“	John Neal, premium	20 00
“	Jesse D. Carr, premium	40 00
“	J. Sessions, premium	80 00
“	W. L. Overhiser, premium	45 00
“	Smith & Overhiser, premium	195 00
“	W. W. Montgomery, premium	5 00
“	Frank Hamilton, premium	10 00
“	I. M. McCue, premium	40 00
“	Moses Wick, premium	180 00
“	W. T. Hutchinson, premium	65 00
“	E. Groat, premium	15 00
“	B. F. McComb, premium	5 00
“	S. A. West, premium	20 00
“	L. H. Fasset, premium	20 00
“	J. M. Tenbrock, police	24 00
“	P. S. Doran, assistant usher	27 00
“	S. S. Hyde, exit gate keeper	24 00
“	J. L. Drum and assistants	393 00
“	George Pardy, royalty	200 00
“	John Everetts	20 00
“	J. Gillin, labor	15 00
“	R. A. Brampton, premium	60 00
“	Heald's College, premium	5 00
“	Charles Thodt	40 00
“	Capitol Woolen Mills, premium	65 00
“	H. A. Rawson, premium	85 00
“	E. Bigley, premium	5 00
“	C. E. Johnson, premium	20 00
“	J. M. Betts & Co., premium	10 00
“	Pollard & Carvill, premium	75 00
“	J. B. Damrell, premium	30 00

Date.	On what account.	Amount.
Sept. 30	William Fleming, premium	$120 00
"	G. G. W. Morgan, premium	5 00
"	G. G. W. Morgan, entry clerk	50 00
"	A. Hart, premium	20 00
"	Mrs. H. Kuhl, premium	20 00
"	Madam Anna Getz Lucas, premium	25 00
"	D. H. Woods, premium	80 00
"	P. J. Merwin, labor	41 25
"	P. Mangle, premium	15 00
"	Walsh estate, thirteen stalls	91 00
"	J. S. Bamber, premium	95 00
"	J. Cummings, premium	25 00
"	Eugene McCarty, premium	40 00
"	P. L. Weaver, premium	25 00
"	Treadwell & Co., premium	50 00
"	Mrs. E. J. King, premium	5 00
"	M. Dusenbury, carpenter	96 00
"	Landrum & Rogers, premium	225 00
"	Butterfield & Son, premium	40 00
"	M. S. Bowdish, premium	10 00
"	Locke & Lavenson, premium	30 00
"	L. Pomeroy, police at stairs	27 00
"	H. Murphy, police at stairs	30 00
"	J. Huff, police at stairs	24 00
"	William Snowden, labor	8 00
"	William H. Todd, labor	42 00
"	Thomas Whelan, police	24 00
"	H. Clayton, labor	8 00
"	P. Hart, premium	11 00
"	Mrs. Springer, premium	20 00
"	M. Keating, carpenter	16 00
"	R. L. Bampton, police	24 00
"	J. Bradwell, police	12 00
"	—— Osborn, assistant marshal	40 00
"	—— Garchner, services at Park	17 00
"	J. W. Huey, assistant marshal	40 00
"	Flem. Johnson, labor	90 00
"	O. D. Teal, clerk at Pavilion	28 00
"	—— Covill, carpenter	35 00
"	—— Baxter, work at Park	8 00
"	Treadwell & Co., premium	5 00
"	O. C. Wheeler, Jr., general help at Pavilion	33 00
"	William Park, police at Pavilion	36 00
"	Albert Coffee, labor	8 00
"	John Shore, assistant entry clerk	50 00
"	W. M. Millard, police	24 00
"	C. W. Adams, premium	3 00
"	L. Preston, police	30 00
"	A. Ebel, premium	65 00
"	S. Wilzinski, premium	15 00

Date.	On what account.	Amount.
Sept. 30	Nichols, Falvey & Co., premium	$50 00
"	John Isaac, police	32 00
"	Mrs. Mary Morton, premium	5 00
"	Thomas & Shirland, premium	40 00
"	J. E. Parker, premium	10 00
"	C. H. Hubbard, premium	20 00
"	Woods & Son, livery bill	13 00
"	James Cassidy, mounted police	32 00
"	G. H. Goddart, premium	10 00
"	P. Brogan, police	21 00
"	Robert Williamson, premium	05 00
"	T. M. Howard, doorkeeper	40 50
"	Al. Covington, messenger	10 00
"	M. Barthel, premium	15 00
"	William McGraw, police	10 50
"	Charles Green, premium	5 00
"	John Cooper, premium	10 00
"	M. O'Hara, labor	34 50
"	T. M. Marshall, police	27 00
"	Rebecca Gibson, chambermaid	22 50
"	Bachman & Newberg, premium	5 00
"	W. G. Badger, premium	20 00
"	J. J. Cass, bill	5 75
"	J. J. Cass, premium	10 00
"	Clark & Co., premium	8 00
"	Devine & Bros., premium	80 00
"	Myers & Gummow, premium	20 00
"	J. R. Johnson, premium	29 00
"	Mrs. L. Mebius, premium	15 00
"	Mrs. Wolfe, premium	15 00
"	W. H. Todd, police	21 00
"	Peter Burns, premium	30 00
"	J. H. Wolfe, premium	19 00
"	J. H. Wolfe, Assistant Superintendent	40 00
"	John Tingman, chief ticket clerk	40 00
"	W. J. Wallace, ticket clerk	24 00
"	E. J. Clark, ticket clerk	32 00
"	Ed. Markham, labor	33 00
"	W. Johnson, premium	40 00
"	R. P. Bartlett, services at Park	24 00
"	B. A. Mardis, clerk	40 00
"	G. T. Lang, police	24 00
"	William Crump, night watchman	30 00
"	J. C. Ledley, back-doorkeeper	30 00
"	W. A. Harper, carpenter	6 00
"	Elijah Yoden, carpenter	30 00
"	Samuel Deal, policeman	24 00
Oct. 3	John V. Hall, engineer, and F. Morgan, fireman	160 00
"	—— Cassidy, carpenter, at Park	4 00
"	Steve Eddington, labor at Park	3 00

Date.	On what account.	Amount.
Oct. 3.......	Mrs. L. R. Robertson, premium	$5 00
"	Frank Magee, labor	1 50
"	E. C. Chambers and John Daly, gas lighters	32 00
"	W. B. Ferral, police at Park	24 00
"	John J. Shick, police at Park	21 00
"	Hiram Clock, labor	72 00
"	Charles Merwin, labor	60 00
"	Isaac E. Allen, straw	256 55
"	W. F. Griggs, labor	49 00
"	W. H. Leitch, drayage	5 00
"	Robert Beck, salary for September	125 00
"	Frank Swift, errand boy	10 00
"	Willie Dunlevy, errand boy	10 00
"	Charles Studems, premium	3 00
Oct. 4......	I. N. Hoag, balance salary for September	75 00
"	I. N. Hoag, expenses Visiting Committee	50 00
"	John S. Williams, balance bill	25 00
"	F. M. Reel, labor at Park	3 00
"	H. C. Harrison, Superintendent	50 00
"	Cox & Clark, premium	10 00
"	William J. Robertson, marshal	40 00
"	Diego Morales, police	24 00
"	Charles Watt, premium	15 00
"	Expenses as per bill filed	9 25
"	Charles L. Knowles, on account	20 00
"	J. F. Stoll, premium	23 00
"	Adam Brash, police	24 00
"	Daniel Flint, premium	30 00
"	M. T. Barr, premium	5 00
"	Phil. Fisher, premium	5 00
"	Thomas Orchard, premium	10 00
"	William Neidthart, carpenter	76 00
"	G. W. Mayberry, bill	174 00
"	M. Crone, bill	108 00
"	George Whitlock, labor	65 00
"	Mrs. Hoover, premium	10 00
"	A. J. Menke, stairkeeper	24 00
"	Nichols, Falvey & Co., premium	25 00
"	Nichols, Falvey & Co., bill	4 00
"	Mrs. Weston, premium	10 00
"	Charles L. Knowles, balance	203 50
"	W. Cantwell, clerk	40 00
"	Express charges on books	50
"	Dewey & Co., bill	163 25
"	Ed. S. Squires, premium	25 00
"	Mrs. M. H. Hahn, premium	10 00
"	Mrs. D. Pierce, premium	3 00
"	Hamberger & Co., bill	56 36
"	Post Office, bill	4 00
"	D. E. Callahan, bill	42 00

Date.	On what account.	Amount.
Oct. 4.......	Spirit of the Times, advertising	$80 00
Oct. 11......	James Anthony & Co., advertising	95 75
"	T. C. Churchman, premium	10 00
"	Daily Bee, advertising	20 75
"	H. S. Beals, usher	24 00
"	Joseph Hill, premium	20 00
"	Dale & Co., bill	6 75
Oct. 12......	Col. Younger, expenses Visiting Committee	300 00
"	H. S. Crocker & Co., bill	527 42
"	A. A. Guersney, clerk	32 00
"	George Schmeiser, bill	22 75
"	F. M. Chapman, bill	40 00
"	A. A. Wood, rebate on rent	100 00
"	P. J. Hopper, advertising	10 00
"	Duel, Griffith & Co., bill	1 12
"	M. R. Rose, premium	10 00
"	I. N. Hoag, balance expenses Visiting Committee.	48 00
"	J. S. Harbison, premium	8 00
"	Toll Brothers, hay and grain bill	413 39
"	A. Leonard, ticket clerk	41 00
"	John A. Todd, lumber	61 14
"	Joseph Builder, police	24 00
"	N. L. Drew & Co., lumber	1,222 25
"	R. B. Patton, clerk	88 00
"	Thomas May, bill	34 60
"	T. Annis, wood	122 50
"	J. Heintz, police	24 00
"	J. C. Muessdorffer, premium	10 00
"	D. Gardner, wood	7 00
"	Benjamin Bullard, clerk	50 00
"	Sundry papers, advertising bills	255 75
"	W. Caswell, bill	23 00
Oct. 15......	D. Stewart, police	24 00
"	Mrs. S. M. Hoover, premium	8 00
Oct. 17......	W. C. Palmer, premium	7 00
"	W. T. Wilson, premium	80 00
"	Thomas Cotter, premium	265 00
"	Gus. Mice, police	40 00
"	A. Mackey, premium	10 00
"	Keyt & Co., bill posting	10 00
Oct. 19......	Peter Chatterton, carpenter	150 00
Oct. 21......	Russell & Winterburn, bill	140 00
"	Five per cent of entries to boat races	70 00
"	L. Preston, moving chairs	11 00
Oct. 22......	John A. Ball, tank	15 00
"	D. H. Quinn, premium	25 00
"	Whittier, Fuller & Co., bill	6 50
"	L. Kellogg, bill	3 00
"	A. M. Adams, premium	5 00
Oct. 23......	Los Angeles Star, advertising	17 50

Date.	On what account.	Amount.
Oct. 23......	Ackerman & Co., bill	$16 20
“	William Fleming, premium	65 00
“	Robert Beck, premium	20 00
“	P. A. Espina, clerk	60 00
“	Hauling safe	5 00
Oct. 24......	Robert Allen, bill	460 00
“	William Higgins, premium	5 00
Oct. 25......	Billingsley & Foster, brooms	3 00
Oct. 26......	W. J. Wallace, balance, clerk	8 00
“	N. L. Drew & Co., lumber	150 00
“	Gas Company, bill	410 20
“	Coffey & Co., order to Hartwell, Hotchkiss & Stalker	212 24
“	Locke & Lavenson, bill	44 00
“	Jersey, bill-posting bill	5 00
“	San José Mercury, advertising	15 00
“	Amador Ledger, advertising	10 00
“	William F. Williamson, clerk of the course	40 00
“	Mrs. Arnold, premium	3 00
Oct. 29......	William B. Ready, premium	40 00
“	H. C. Kirk & Co., bill	7 50
“	Mrs. Blackleach, bill	16 00
“	R. C. Terry, bill	7 00
“	B. R. Sweetland, bill	1 50
“	A. Dennery, bill	5 00
“	B. Dennery, bill	3 75
“	Samuel Jelly, bill	15 00
“	Mrs. L. Studeman, premium	9 00
“	Webster's Dictionary	10 00
“	F. X. Kast, premium	11 00
“	E. Black Ryan, clerk and horse hire	85 00
“	Express charges, bringing Statutes and Journals from Capitol	50
“	Wells, Fargo & Co., charges on Iowa Reports	2 60
“	Wells, Fargo & Co., on money received by Landrum & Rogers	60
“	Express envelopes	2 00
Oct. 31......	John Smith, premium	6 00
“	E. Parsons, premium	18 00
“	Mrs. Cross, premium	5 00
“	E. Dane, premium	70 00
“	Nevada Ice Co., bill	9 80
Nov. 1......	G. G. W. Morgan, filling diplomas, on account	20 00
“	Ad. Mailliard, premium	25 00
“	Mrs. Cronkite, premium	5 00
“	I. N. Hoag, salary for October	125 00
“	John P. Tierney, diploma frames	133 95
Nov. 6......	Ad. Mailliard (silver pitcher)	75 00
Nov. 7......	Robert Beck, salary for October	125 00
Nov. 9......	John Breuner, Park bill	244 50

Date.	On what account.	Amount.
Nov. 9......	John Breuner, Pavilion bill	$38 00
“	John Breuner, premium	70 00
“	Ed. Cadwalader, bill	70 00
“	Coffey's order to James Carolan & Co	107 27
Nov. 12.....	J. W. Jenkins, work on old stand	46 00
“	Mrs. J. E. Cotter, premium	8 00
“	Mrs. J. Minford, premium	3 00
“	S. H. Davis & Co., bill	153 25
“	G. G. W. Morgan, filling diplomas, on account	20 00
Nov. 14.....	A. S. Greenlaw, premium	15 00
“	George S. Baker, diplomas	62 50
Nov. 15.....	Coffey's order to Hunt & Anderson	50 00
Nov. 19.....	Henderson & Clark, premium	25 00
“	Mrs. Louisa Myers, premium	3 00
Nov. 20.....	H. H. Hewlett, premium of 1871	50 00
Nov. 21.....	Telegram to President Reed	25
“	I. N. Hoag, telegram bill	1 00
Nov. 23.....	Traver & Blessing, bill	155 00
“	Insurance on new stand	94 80
“	Hamberger & Co., bill	2 25
“	P. A. Espina, balance bill	5 00
Nov. 27.....	William P. Michner, bill	72 00
“	Huntington, Hopkins & Co., bill	121 55
“	David Bush, bill	166 44
“	C. H. Krebs, bill	296 86
“	Samuel Poorman, hay	63 35
“	Coffey, order to N. L. Drew & Co	618 73
Nov. 29.....	Coffey, order to N. L. Drew & Co	150 76
“	S. Dodge, bill	12 00
“	S. Cole, premium	45 00
“	E. Ford, premium	5 00
“	Postage on San Joaquin Valley Reports	35
Nov. 30.....	A. M. Smith, bill	115 00
“	Peter Burns, premium	5 00
“	Root, Neilson & Co., bill	5 91
Dec. 2......	Coffey's order to J. L. Chadderton	79 50
Dec. 4......	A. A. Bennett, bill	150 00
“	Robert Beck, salary for November	125 00
Dec. 5......	Express charges on Illinois Reports	6 60
Dec. 6......	John Bell, old bill, services	10 00
“	G. G. W. Morgan, on account of filling diplomas	20 00
“	I. N. Hoag, salary for November	125 00
“	Gas Company, bill	3 60
Dec. 7......	J. H. Wolfe, premium	6 00
“	Express charges on diplomas	50
“	Express charges on medals	65
Dec. 10.....	Mrs. J. Rivett, premium	5 00
Dec. 14.....	C. H. Krebs, bill	1 00
“	Beatty & Curtiss, bill	12 50
“	Justin Gates & Bro., bill	12 50

Date.	On what account.	Amount.
Dec. 14.....	C. P. R. R. Co., tank..	$887 18
"	C. F. Reed...............	1,000 00
Dec. 16.....	Whittier, Fuller & Co., bill................................	67 50
Dec. 18.....	Jesse Slaughter, bill	40 50
Dec. 23.....	R. T. Brown, services......................................	250 00
Dec. 24.....	Jesse Slaughter, bill..	10 00
Dec. 31.....	I. N. Hoag, salary for December.........................	125 00
"	Robert Beck, salary for December.......................	125 00
"	R. S. Carey, services.......................................	500 00
"	D. O. Mills & Co., interest..................................	300 00
1873.		
Jan. —......	California Chemical Paint Company, premium.....	5 00
"	G. G. W. Morgan, balance of bill, filling diplomas	9 00
		$47,831 16

ANIMALS EXHIBITED AT THE PARK.

CLASS I—THOROUGHBRED HORSES.

STALLIONS.

Best Stallions four years old and over.

A. Mailliard, San Rafael, Marin County—Young Eclipse, by imported Eclipse; dam, imported Barbarity. Monday, by Cotton; dam, Mollie Jackson.

D. M. Reavis, Chico, Butte County—Volscian, by imported Vandal; dam, Gray Eagle.

C. Mehan, San Leandro, Alameda County—George Lee, by imported Black Prince; dam, Bay Queen, by imported dam, Grand Expedition.

James Mee, San Francisco—Norfall, by Norfolk; dam, Moss Rose.

Nathan Coombs, Napa—Lodi, by imported Yorkshire; dam, Lopez, by imported Glencoe. Primero, by Lodi; dam, Eva Bulwer.

R. A. Branton, Dixon—Tickle-my-Fancy, by Consul; dam, an Abdallah mare.

John Hall, Alvarado—Woodburn, by Lexington; dam, Heads-I-Say, by imported Glencoe. Ironclad, by Woodburn; dam, Peggy Ringgold, by Ringgold.

Thomas Atchison, Marysville—Tom Atchison, by Norfolk; dam, Mary G, by imported Lola Montez.

Best three years old.

N. Coombs, Napa—Photos, by Lodi; dam, Fanny Collier.

Best two years old.

J. C. Tyler, Tehama—Reub, by Rifleman; dam, by imported Sovereign.

James Mee, San Francisco—Ixion, by Woodburn; dam, Bonnie Belle.

John Hall, Alvarado—Alic, by Woodburn; dam, Peggy Ringgold. King Star, by Woodburn; dam, Moss Rose.

A. Mailliard, San Rafael, Marin County—Mariner, by Young Eclipse; dam, Milly. Raphael, by Norfolk; dam, Cleopatra.

J. B. Damrell, Stockton—Tommy, by Woodburn; dam, Peggy Ringgold.

John Hall, Alvarado. ——, by Woodburn; dam, Viola.

Best Colt under one year.

John Hall, Alvarado—Capt. Harris, by Woodburn; dam, Moss Rose.

A. Mailliard, San Rafael—Tuesday, by Monday; dam, Hennie Farrow.

MARES.

Best four years old and over, with Colt.

A. Mailliard, San Rafael—Hennie Farrow, by imported Shamrock; dam, Ida, by imported Belshazzar. Ballerina, by imported Balrounie; dam, Hennie Farrow.

Daniel Woods, Tehama—Young Goliah, by Rifleman; dam, Goliah mare.

J. R. Kelly, San Francisco—Lady Jane and colt, by Marauder; dam, Jane Shore, by Young Waxy.

John Hall, Alvarado—Peggy Ringgold, by Ringgold; dam, Little Peggy, by Cripple. Moss Rose, by imported Knight of St. George; dam, imported Melrose.

Best four years old and over.

A. Mailliard, San Rafael—Mayflower, by imported Eclipse; dam, Hennie Farrow. Cleopatra, by imported Eclipse; dam, Ellie Rodgers. Milly, by Slasher; dam, Ellie Rodgers.

N. Coombs, Napa—Ruth Ryan, by Lodi; dam, Eva Bulwer.

John Hall, Alvarado—Peggy Ringgold; Moss Rose.

Best three years old.

James Mee, San Francisco—Abi, by Woodburn; dam, Peggy Ringgold.

John Hall, Alvarado—Kittie, by Woodburn; dam, Viola.

Joseph Gluckauf, Oroville—Antelope, by Norfolk; dam, Pastora.

Best two years old.

Charles Murphy, San José—Omaha, by imported Hercules; dam, Peri, by Boston.

John Hall, Alvarado—Lady Franklin, by Woodburn; dam, Lady Franklin.

Best one year old.

A. Mailliard, San Rafael—Belle, by imported Eclipse; dam, Hennie Farrow.

Best Mare Colt under one year.

John Hall, Alvarado—Lady Washington, by Woodburn; dam, Peggy Ringgold.

David Woods, Tehama—Daisy, by Bois de Arc; dam, Goliah.

Joseph Gluckauf, Oroville—Orient, by Norfolk; dam, Black Maria.

FAMILIES.

Best Thoroughbred Sire with not less than ten of his Colts, all thoroughbred.

John Hall, Alvarado—Woodburn, and colts Alice May, Ironclad, Alice, Kingstar, Abi, Thomas, No Name, Lady Washington, Captain Harris, and Kittie.

Best Thoroughbred Dam, with not less than four of her Colts, all thoroughbred.

John Hall, Alvarado—Peggy Ringgold, and colts Alice May, Ironclad, Alic, Abi, Thomas, and Lady Washington.

Joseph Gluckauf, Oroville—Black Maria, and colts Frank, Acrobat, Lodi, Jr., and Orient.

A. Mailliard, San Rafael—Hennie Farrow, and colts Ballerina, Mayflower, Belle, and Tuesday.

Best Stallion other than thoroughbred, with not less than ten of his Colts.

William Hamilton, San José—Ethan Allen, Jr., and colts Bess, Jennie, Fannie, Trump, Young Allen, Malone, Susie, Clara, Jim, and Fanchon.

Best Dam other than thoroughbred, with not less than three of her Colts.

William Hamilton, San José—Winona; Santa Clara.

William M. Haynie, Sacramento—Sacramento Belle, with colts Camilla Urso, Grace Darling, and Mark Hopkins.

John Neal, Sacramento—Eliza, and colts Hiram, Flora, and Johnny.

S. L. Monday, Cacheville—Kittie May, and colts Yolo, Bill, Dolly Martin, and Dick Barnes.

CLASS II—GRADED HORSES.

STALLIONS.

Best four years old and over.

C. J. Buckland, San Francisco—British Champion, by Venture; dam, by Calvert Horsman's Champion; aged six years; imported England.

William Hamilton, San José—Ethan Allen, Jr., by old Ethan Allen; dam, Hambletonian mare.

A. Musick, Sacramento—Mark Moore, by George Moore; dam, imported Sallie Franklin.

David Berry, Oakland—Henry Williamson, by California, by Belmont; dam, Silvercup.

Daniel M. Downey, Vacaville—Ironclad, by Argyle; dam, Blackhawk mare.

Pat. Ferrel, San Francisco—No Name, by Du Bois' Hiram Woodruff; dam, by imported Glencoe.

J. L. Eoff, Sacramento—John Nelson, by imported Trustee; dam, by Abdallah.

C. P. Marsh, Oakland—High Die, by Lodi; dam unknown.

Best three years old.

P. F. Mangen, Sacramento—Newton Booth, by Norfolk.

Alexander Ely, San Francisco—Inauguration, by Alexander; dam, Messenger mare Lady Hester.

S. Eaton, Marysville—Clarion, by Langford; dam, a Tom Moore mare.

Best two years old.

Charles M. Taylor, Cosumnes, Sacramento County—Excelsior, by John Bull, by imported England's Glory; dam, Wallace mare.

A. Musick, Sacramento—Alexander Selkirk, by Norfolk; dam, Sally Franklin.

Best one year old.

William Hamilton, San José—Young Allen, by Ethan Allen, Jr.; dam, Langford mare. Malone, same pedigree.

D. M. Reavis, Chico—Blackbird, Jr., by Blackbird; dam, Blackhawk mare.

Joseph Gluckauf, Oroville—Pastor, by David Hill; dam, Pastora.

Best Colt under one year, without reference to sex.

William Hamilton, San José—Faurhow, by Ethan Allen, Jr.; dam, Winona.

MARES.

Best four years old and over.

J. S. McCue, San Francisco—Princeton Girl, by imported Signal; dam, unknown.

J. F. Chadwick, Hicksville—Lilly Moore, by George Moore; dam, Printer, by imported Bertrand.

William Hamilton, San José—Santa Clara.

T. C. Perkins, Brighton—Jennie, by imported Constellation; dam, imported Bulwer.

J. Sessions, Brooklyn—Young Diamond, by Speculator; dam, Lost Diamond.

Alexander Ely, San Francisco—Flora, by Kentucky Hunter; dam, Fanny.

H. W. Johnson, Sacramento—Lady Franklin, by Dashaway; dam, Jennie Walker.

Joseph Gluckauf, Oroville—Biddy, by Rifleman; dam, Kate.

Best four years old and over, with Colt.

William Hamilton, San José—Winona and colt Fanchon.

H. S. Beals, Sacramento—Lady Dalton and colt.

Best three years old.

William Hamilton, San José—Jennie Allen, by Ethan Allen, Jr.

Best two years old.

William Hamilton, San José—Trumps, by Ethan Allen, Jr.

Best one year old.

William Hamilton, San José—Clara, Susie, and Gem, all by Ethan Allen, Jr.

D. M. Reavis, Chico—Flora, by Blackbird; dam, Morgan mare.

A. Musick, Sacramento—Emma Skaggs, by Norfolk; dam, Sally Franklin.

J. J. Smith, Cacheville—Leontine, by Norfolk; dam, a Rifleman mare.

CLASS III—HORSES OF ALL WORK.

STALLIONS.

Best four years old and over.

John Cooney, San José—Almaden Chief, by imported Suffolk Punch; dam, thoroughbred mare.

Joshua Reeves, Lincoln, Placer County—Vibrator, by Planter; dam, Signal mare.

John H. Jackson, Cacheville—Black Buck.

John Bidwell, Chico—Wallace, by Clydesdale; dam, Morgan mare.

J. S. Sterling, Centerville, Mariposa County—Blackhawk Chief, by Sherman Blackhawk.

S. Treat, Elk Grove—Comet.

P. M. Warn, Sacramento—Morgan coach horse.

Best three years old.

George Verinder, Latrobe—Honest John.

Best two years old.

J C. Tyler, Tehama—Reub, by Rifleman; dam, by imported Sovereign.

S. L. Monday, Cacheville—Yolo Bill.

John Neal, Sacramento—Hiram.

F. W. Vahle, Nicolaus—Bismark, by imported Wallace; dam's sire, Morgan Blackhawk.

Best one year old.

G. M. McWain, Marysville—Jim.

MARES.

Best four years old and over, with Colt.

C. J. Buckland, San Francisco—British Champion, by Venture; dam, by Calvert Horsman's Champion; age six years; imported England.

W. M. Haynie, Sacramento—Sacramento Belle.

G. M. McWain, Marysville—Julia Ann.

S. L. Monday, Cacheville—Kitty May and Dick Barnes.
Jacob Stortz, Sacramento—Nellie Gray.
John Stewart (for A. Plummer), Sacramento—Fan.

Best four years old and over.

J. M. Walker, Knight's Landing—Fannie.
A. D. Miller, Sacramento—Lady Miller.
Michael Nicholson, San José—Kate, by Suffolk Punch; dam, Messenger mare.

Best three years old.

John H. Jackson, Cacheville—Kate Sportsman.
J. M. Walker, Knight's Landing—Clara B., by David Hill.

Best two years old.

W. M. Haynie, Sacramento—Camilla Urso.
S. L. Monday, Cacheville—Wild Pigeon.

Best one year old.

S. L. Monday, Cacheville—Dolly Martin.
John Neal, Sacramento—Flora.
W. M. Haynie, Sacramento—Grace Darling.

CLASS IV—DRAFT HORSES.

STALLIONS.

Best four years old and over.

C. J. Buckland, San Francisco—Britton, by Wilson's Britton; dam's sire, Fayer's Boxer.
John Rodgers, Contra Costa—Scott colt, by imported Black Prince; dam, Kentucky mare.
C. Mehan, San Leandro—George Lee, by imported Black Prince; dam, Bay Queen, by imported Grand Expedition.
A. Branton—Grant Judge, by England's Glory; dam, Messenger mare.
Massey Thomas, Gilroy—Scottish Chief, Jr., by Scottish Chief; dam, Norman mare.

Best three years old.

J. M. Dudley, Dixon—Robert Bruce, by imported Scottish Chief.
Wm. Sparrow, Franklin—Young John Bull, by imported John Bull.

Best two years old.

C. W. Taylor, Cosumnes—Excelsior.

MARES.

Best three years old.

J. A. Evans, Mahew Station—Mary.

Best four years old and over, with Colt.

John Neal, Sacramento—Eliza.
Chris. Thodt, Dixon—Kate.

CLASS V—ROADSTERS.

STALLIONS.

Best four years old and over.

John E. Miller, Sacramento—St. Clair.
Barlow Smith, San Francisco—Naubuc.
Robert Greive, Davisville—Bully.
D. M. Reavis, Chico—Blackbird.
Alexander Ely, San Francisco—General Dana, by Hambletonian; dam, Fanny.
L. H. Fassett, Sacramento—Young Nelson, by John Nelson; dam, a Morgan and Messenger mare.
John Stewart (for A. Plummer)—Dan, by Black Eagle; dam, unknown.
E. M. Skaggs, Sacramento—Young Rattler, by Old Rattler; dam, Lady Fulton.
James Helms, Firebaugh's Ferry—Sam. Purdy, by George M. Patchen, Jr.; dam, Lady Jane, by Illinois Medoc.
Hiram Tracy, Concord, Contra Costa—Pat. Malloy, by George M. Patchen, Jr.; dam, Lady Woodward.

Best three years old.

J. D. Carr, Gavilan, Monterey County—Membrino, Jr.

Best two years old.

Barlow Smith, San Francisco—Thomas Jefferson, Jr.
Daniel Flint, Sacramento—Blondin.
Adam Newbauer, Sacramento—Washington, by Tecumseh; dam, St. Clair, g. d. St. Clair.
J. M. Walker, Knight's Landing—Duster, by Primus.

GELDINGS.

Best four years old and over.

Mark Anthony, San Mateo—Dauntless.
H. L. White, San Francisco—Calhoun.

W. H. Shuey, Walnut Creek, Contra Costa County—Translator.
J. Sessions, Brooklyn, Alameda County—Brooklyn Boy.
John Stewart (for A. Plummer), Sacramento—Frank.
J. S. McCue, San Francisco—Sharon, by Nelson; dam, unknown.
Eugene McCarty, San Francisco—Westfield, by Whipple's Hambletonian; dam, Lady Woodward.
David Wood, Tehama—Doc, by John Nelson; dam, a Signal mare.
W. M. Stark, San Francisco—Donley.
D. J. Holden, Yolo—John Brown.
A. F. Smith, Sacramento—George Treat.
G. M. McWain, Marysville—Ben. Rattler.
Hiram Tracy, Concord—Dan. Rice and Uncle Sam.
D. B. Sherman, Georgetown—George Washington.

MARES.

Best four years old and over.

J. Sessions, Brooklyn—Young Oakland Maid, by Speculation; dam, Lady Vernon.
P. M. Warn, Sacramento—Sim. Oldham's Sister.
E. M. Skaggs—Nellie Graham, by Rattler; dam, unknown.
E. M. Skaggs—Lady Bell, by Abdallah; dam, a Bellfounder mare.

Best three years old.

William Hamilton, San José—Bess Allen, by Ethan Allen, Jr.
Joshua Reeves, Lincoln—Sallie Sailing, by May Boy; dam, by Blackhawk.
J. M. Nye, Sacramento—Maggie Miller, by Black Ralph.
O. M. Gwinn, Knight's Landing—Belle Boyd.
J. M. Walker, Knight's Landing—Lucy, by John Nelson.

Best two years old.

William Hamilton, San José—Fanny Allen, by Ethan Allen, Jr.
Joshua Reeves, Lincoln—Maggie Reeves, by Vibrator; dam, by John Nelson.
John Howes, San Francisco—Matta Kesett, by St. Clair, Jr.; dam, Lady Grant.
A. F. Smith, Sacramento—Sierra, by Young David Hill; dam, Addie G.

CLASS VI—CARRIAGE HORSES.

Best matched span carriage horses, owned and used as such by one person.

A. E. Lawrence, Lawrence Station—Carrie and Flora.
J. D. Carr, Gavilan—Bobb and John.
J. M. Garoutte, Woodland—Bucephalus and Sierra Boy.
J. B. McDonald, Marysville—Reese River and Jake.

E. Wilson, San Francisco—Brown George and mate, by McCracken's Blackhawk; dam, a St. Clair mare.
R. M. Graves, Virginia City, Nevada—George and Forest.
Joseph Perrin, Grass Valley—Yokum and Sawdust.

CLASS VII—ROADSTER TEAMS.

Best double team roadsters, owned and used as such by one person.

J. S. McCue, San Francisco—Olin and Magna Charta.
F. H. Rahm, Antelope—Billy and Prince.
H. Nichols, Yreka—Clifton and Dyke.
Justin Gates, Sacramento—Major and Roderick.

CLASS VIII—SADDLE HORSES.

Best Saddle Horse.

D. J. Holden, Yolo—Fleetfoot.
J. S. McCue, San Francisco—Silver Heels, by imported Jack Hawkins.
L. Shepler, Sacramento—Billy Messenger, by Billy Monroe.
Thomas Showler, Sacramento—Rockland.

CLASS IX—COLTS.

Best Yearling Horse Colt.

Joshua Rives, Lincoln—Black Phil.
J. M. Garoutte, Woodland—Sierra Boy.
G. M. McWain, Marysville—Jim.
E. M. Skaggs, Sacramento—Billy Whetstone.
John Neal, Sacramento—Flora.

Best Yearling Mare Colt.

Jacob Stortz, Sacramento—Lady Don.
William M. Haynie, Sacramento—Grace Darling.

Best Sucking Horse Colt.

William M. Haynie, Sacramento—Mark Hopkins.
L. H. Fassett, Sacramento—Rusher.

H. S. Beals, Sacramento—Goat Island.
John Neal, Sacramento—Johnny.
John Stewart (for A. Plummer), Sacramento—Overland Bill.

Best Sucking Mare Colt.

Chris. Thodt, Dixon—Lucy.
G. M. McWain, Marysville—Maggie.

Best exhibit of not less than three, owned by one person, of any age or sex.

William Hamilton, San José—Six colts of Ethan Allen, Jr.: Fanny Allen, Bess Allen, Lily, Flora, Sallie, and Dick Brown.

CLASS X—SWEEPSTAKES.

Best Stallion, of any age.

C. J. Buckland, San Francisco—British Champion, by Venture.
D. M. Reavis, Chico—Blackbird.
J. D. Carr, Gavilan—Membrino, Jr.
C. J. Buckland, San Francisco—Briton.
D. M. Reavis, Chico—Blackbird, Jr.
John Cooney, San José—Almaden Chief.
Nathan Coombs, Napa—Lodi.
John Hall, Alvarado—Woodburn and Ironclad.
J. L. Eoff, Sacramento—John Nelson.
Massey Thomas, Gilroy—Scottish Chief, Jr.

Best Mare of any age.

Michael Nicholson, San José—Kate.
John Hall, Alvarado—Peggy Ringgold.
A. Mailliard, San Rafael—Hennie Farrow.
J. J. McCue, San Francisco—Princeton Girl.
William Hamilton, San José—Santa Clara.
D. M. Reavis, Chico—Flora.
J. R. Kelly, San Francisco—Lady Jane.
Joseph Gluckauf, Oroville—Black Maria, Pastora, Trout, Antelope, and Orient.

CLASS I—CATTLE.

DURHAM BULLS.

Best four years old and over.

Robert Ashburner, San Mateo—Water Prince.
Cannon & Staples, Suisun—Perfection.

Joseph L. Chambers, Colusa—Airdrie Lad.
C. Younger, San José—Glencoe.
R. M. Sparks, Marysville—Monkey John, by Ascot, second out of Maria Squire.
M. Wick, Oroville—Crown Prince.

Best three years old and over.

L. Pierce, San Francisco—Lord Is-a-beau and Daisy Duke.
G. N. Sweezy, Marysville—First Duke of Yuba.
Charles Clark, Milpitas—Lincoln.

Best two years old and over.

G. R. Vernon, San José—Dandy Jim.
M. Wick, Oroville—Butte, Glenwood, and Goldhunter.
Wm. Fleming, Napa City—May Duke.
J. D. Carr, Gavilan—Romeo and Butterdale.
Wm. L. Overhiser, Stockton—Third Grand Turk of Oak Home.
Cannon & Staples, Suisun—Monitor.
C. Younger, San José—Comet.

Best one year old and over.

Cannon & Staples, Suisun—Diamond.
John L. Chambers, Colusa—Airdrie of Colusa.
C. Younger, San José—Tempest.
G. N. Sweezy, Marysville—Second Duke of Yuba and Butter Duke.
R. M. Sparks, Marysville—Stonewall.
J. B. Hobson, Auburn—Vanguard.
M. Wick, Oroville—Grant and Sherman.
Cannon & Staples, Suisun—Monitor.
E. Comstock, Sacramento—Darien.
William L. Overhiser, Stockton—Fourth Grand Turk of Oak Home.

Best Bull Calf.

R. M. Sparks, Marysville—Bismark, Alexis, and Lexington.
M. Wick, Oroville—Orlando, Roscoe, and Roan Star.
William Fleming, Napa—Azim.
E. Comstock, Sacramento—First Duke of Yolo.
J. D. Carr, Gavilan—Dixie.
William L. Overhiser, Stockton—Ninth Grand Turk of Oak Home.
R. Ashburner, San Mateo—Crown Prince, by Water Prince, out of Pocahontas First, by imported Harold Second.
J. L. Chambers, Colusa—Woodlawn of Bellevue, Bret Harte, Stanley, Woodlawn, Jr., and Ivanhoe.
C. Younger, San José—Planet and Moonlight.
L. Pierce, San Francisco—California Darlington.
G. N. Sweezy, Marysville—Fourth Duke of Yuba, Fifth Duke of Yuba, and Duke of the North.

COWS.

Best four years old and over.

Joseph L. Chambers, Colusa—Ione 2d and Ione 3d.
C. Younger, San José—Lady of the Lake and Sprightly.
L. Pierce, San Francisco—Darlington 13th and Oxford Rose.
G. N. Sweezy, Marysville—Beauty and Amelia 2d.
R. M. Sparks, Marysville—Miss Morgan, by Duke of Marlborough, out of Bourbon Lady; Alice, by Leonidas, out of Belle Brent; Maggie, by Duke of Clinton, out of Fulgoria.
M. Wick, Oroville—Heroine, 106, and Belle Republic.
E. Comstock, Sacramento—Redskin.
W. L. Overhiser, Stockton—Rosette 2d, Rosette 3d, and Tulip 6th.

Best three years old and over.

R. M. Sparks, Marysville—Eulalie, by Miss Butterfly's son of Grand Turk, out of imported Miss Morgan.
M. Wicks, Oroville—Echo.
Wm. Fleming, Napa—Beauty.
C. Younger, San José—Peggy 1st and Eleurose.
L. Pierce, San Francisco—Moss Rose.
G. N. Sweezy, Marysville—Queen of May.

Best two years old and over.

Cannon & Staples, Suisun—Riza.
C. Younger, San José—Norma.
G. N. Sweezy, Marysville—Ione 2d of Yuba.
Wm. Fleming, Napa City—Dahlia 5th.
J. D. Carr, Gavilan—Maud and Laura.
Wm. L. Overhiser, Stockton—Tulip 8th.

Best one year old and over.

R. M. Sparks, Marysville—Maggie 3d, by imported Monkey John, out of imported Maggie.
M. Wick, Oroville—Belle of Butte.
W. L. Overhiser, Stockton—Rosette 5th, Flora Temple 6th, Duchess d'Argentine 4th, Tulip 10th, Curiosity 4th, Rosette 6th.
Cannon & Staples, Suisun—Ella 10th, Red Bud.
C. Younger, San José—Jennie, Maid of Woodlawn, Gem.
G. N. Sweezy, Marysville—Addie.

Best Heifer Calf.

J. L. Chambers, Colusa—Inez, Idle Girl 3d, Iris.
C. Younger, San José—Rosette, Lady Booth, Forest Queen, Daisy.
L. Pierce, San Francisco—Oxford Bride.
G. N. Sweezy, Marysville—Duchess of Yuba, Amelia 4th, Amelia 5th, Ione 3d of Yuba, Jennie Ione.
R. M. Sparks, Marysville—Maggie 4th, by imported Monkey John, out of imported Maggie; Belle of Yuba, by imported Monkey John, out of Miss Alice.
J. D. Carr, Gavilan—Daisy.

DEVON CATTLE—BULLS.

Best four years old and over.

J. R. Rose, Lakeville—Bloomfield, Frank Quarterly.

Best three years old and over.

J. R. Rose, Lakeville—Phil. Sheridan.

Best two years old and over.

J. R. Rose, Lakeville—General Sherman, Victor.

Best one year old and over.

J. R. Rose, Lakeville—Sonoma.
William Fleming, Napa—Earl of Leicester, imported from Canada.

Best Bull Calf.

J. R. Rose, Lakeville—No name.

COWS.

Best four years old and over.

J. R. Rose, Lakeville—Curly, Maud.
William M. Fleming, Napa—Victoria.

Best two years old and over.

J. R. Rose, Lakeville—Curly 3d.

Best one year old and over.

J. R. Rose, Lakeville—Nellie.

Best Heifer Calf.

J. R. Rose, Lakeville—No name.

ALDERNEYS AND JERSEYS—BULLS.

Best four years old and over.

John Cooney, San José—Brian Boru, by Prince Albert, out of imported Victoria.
C. B. Polhemus, San José—Prince Albert, imported.

Best three years old and over.

William Johnston, Richland—Billy.
Phil. Weaver, Napa—Solace.

JERSEY—COWS.

Best one year old and over.

P. L. Weaver, Napa—Mela, Bessie.

AYRESHIRES—COWS.

Best two years old and over.

L. A. Upson, Sacramento—Flora McIvor.

CLASS II—GRADED CATTLE.

BULLS.

Best three years old and over.

R. Ashburner, San Mateo—Water Prince 1st, by imported Water Prince, out of Dewdrop.

Best two years old and over.

J. B. Hobson, Auburn—Billy.

Best one year old and over.

G. N. Sweezy, Marysville—Prince of Yuba.

Best Bull Calf.

E. Comstock, Sacramento—Billy and Mike.
Charles Clark, Milpitas—John Blakoe.
R. Ashburner, San Mateo—Ajax, Master Buttercup.
J. L. Chambers, Colusa—Ben Bolt.
Cox & Clark, Sacramento—Young Grant and Sacramento.

COWS.

Best four years old and over.

R. Ashburner, San Mateo—Tulip and Strawberry.
G. N. Sweezy, Marysville—Queen and Kate.
E. Comstock, Sacramento—White Lily.

John Bidwell, Chico—Chloe.
I. N. Babcock, Sacramento—Ella Maybridge.

Best three years old and over.

E. Comstock, Sacramento—Cherry.
R. Ashburner, San Mateo—Roany.
Robert Williamson, Sacramento—Lily.

Best two years old and over.

R. Ashburner, San Mateo—Buttercup.
Cannon & Staples, Suisun—Mollie.
Robert Williamson, Sacramento—Dolly.
Charles Green, Rio Vista—Mary.
T. C. Perkins, Brighton—Lucy.
Charles Clark, Milpitas—Kate Hayes and Ellen Lane.

Best one year old and over.

Peter Burns, Sacramento—Maria.
L. Pierce, San Francisco—Bessy, Bell, and Flora.
R. Beck, Sacramento—Three graded heifers.
E. Comstock, Sacramento—Beauty and Roany.
Charles Clark, Milpitas—Alvira.

Best Heifer Calves.

E. Comstock, Sacramento—Blanche.
Charles Clark, Milpitas—Dolly Varden and Lizzy Neal.
John Bidwell, Chico—White Rose.
J. L. Chambers, Colusa—Nellie.

Best herd of Cattle of any one breed, not less than ten, owned by one person.

J. R. Rose, Lakeville—Bloomfield and others.
C. Younger, San José—Glencoe and others.
L. Pierce, San Francisco—Oxford Bride and others.
R. M. Sparks, Marysville—Monkey John and others.
M. Wick, Oroville—Crown Prince and others.
W. L. Overhiser, Stockton—Third Grand Turk of Oak Home.
G. N. Sweezy, Marysville—First Duke of Yuba and others.
J. L. Chambers—Airdrie Lad and others.

CLASS III—CATTLE SWEEPSTAKES.

R. M. Sparks, Marysville—Monkey John and Bismarck.
M. Wick, Oroville, Butte County—Crown Prince, Glenwood, Gold Hunter, Grant, Sherman, Orlando, Roscoe, and Roan Star.
Charles Clark, Milpitas—Lincoln.

William L. Overhiser, Stockton—Third Grand Turk of Oak Home, Fourth Grand Turk of Oak Home.
R. Ashburner, San Mateo—Water Prince.
J. L. Chambers, Colusa County—Airdrie of Colusa, Ben Bolt, Stanley, Ivanhoe, and Woodlawn of Bellevue.
J. R. Rose, Lakeville—Bloomfield and Frank Quarterly.
Cannon & Staples, Suisun—Perfection and Monitor.
C. Younger, San José—Glencoe, Comet, and Planet.
L. Pierce, San Francisco—Lord Is-a-beau.
G. N. Sweezy, Marysville—First Duke of Yuba, Fourth Duke of Yuba, and Fifth Duke of Yuba.
G. R. Vernon, San José—Dandy Jim.

Best Cow of any age or stock.

R. M. Sparks, Marysville—Miss Morgan, Eulalie, Maggie 5th.
M. Wick, Oroville—Echo, Heroine, Belle Republic, Belle of Butte.
John Bidwell, Chico—Chloe.
W. L. Overhiser, Stockton—Rosette 2d, Rosette 3d, and Tulip 4th.
E. Comstock, Sacramento—Redskin.
J. L. Chambers, Colusa County—Ione 2d, Inez, and Idle Girl 3d.
J. R. Rose, Lakeville—Curly.
Cannon & Staples, Suisun—Riza and Ella 10th.
C. Younger, San José—Sprightly, Forest Queen, and Lady of the Lake.
L. Pierce, San Francisco—Darlington 13th, Moss Rose, Oxford Rose, and Oxford Bride.
G. N. Sweezy, Marysville—Beauty, Addie, Duchess, Daisy, and Amelia.

SHEEP.

CLASS I—FINE WOOL SHEEP.

Best Ram two years old and over.

M. L. Hardin, Millville—Lord Silver Fleece.

Best Ram two years old and over—Spanish Merino.

Severance & Peet, Stockton—Hero.
Smith & Overhiser, Grayson—Challenge and Wide-awake.

Best Ram under two years—Spanish Merino.

Severance & Peet, Stockton—Green Mountain and Young Eureka.
Smith & Overhiser, Grayson—Comet, Jr.

Best three Ram Lambs—Spanish Merino.

Smith & Overhiser, Grayson.

Best three Ewes two years old and over—Spanish Merino.

Smith & Overhiser, Grayson.
W. T. Wilson, Elk Grove.

Best five Ewe Lambs—Spanish Merino.

Smith & Overhiser, Grayson.

Best three Ewes under two years—Spanish Merino.

Severance & Peet, Stockton.

Rams and Ewes entered for exhibition, not for premium.

R. Beck, Sacramento—Fine Silesian rams.
R. Beck, Sacramento—Three Silesian ewes two years old and over.

CLASS II—LONG WOOL SHEEP.

Best Ram two years old and over.

Landrum & Rogers, Watsonville—Young Wellington.
William Fleming, Napa—Patriarch.
J. Gregory, Sacramento—Prince Albert.

Best Ram under two years.

William Fleming, Napa—Zadoc.

Best five Ram Lambs.

Landrum & Rogers, Watsonville.

Best Ram two years old and over—Cotswold.

W. T. Wilson, Elk Grove—Pride of England.

Best Ram under two years.

W. T. Wilson, Elk Grove.

Best three Ewes two years old and over.

Landrum & Rogers, Watsonville.

Best three Ewes under two years.

Landrum & Rogers, Watsonville.
William Fleming, Napa—Three Cotswold.

Best five Ewe Lambs.

Landrum & Rogers, Watsonville.

CLASS IV—SHEEP SWEEPSTAKES.

Best Ram and ten of his Lambs.

Landrum & Rogers, Watsonville—Prince of Ontario.

Best Ram of any age or breed.

Landrum & Rogers, Watsonville.
M. L. Hardin, Millville—Lord Silver Fleece.
Smith & Overhiser, Grayson—Challenge, Wide-awake, and Comet.
W. T. Wilson, Elk Grove—Pride of England.

Best Ewe of any age or breed.

Smith & Overhiser, Grayson—516, 949, and 127.
W. T. Wilson, Elk Grove—Queen of the Valley.

Best pen of Ewes of any age or breed, not less than five.

William Fleming, Napa.
Landrum & Rogers, Watsonville.

Best Ewe of any age or breed.

Landrum & Rogers, Watsonville—No name.

GOATS.

CLASS I—CASHMERE AND ANGORA.

Best thoroughbred Buck..

Thomas & Shirland, Placer—Seven bucks.
Thomas Butterfield & Son, Hollister.
Landrum & Rogers, Watsonville—No name.
N. Gilmore, El Dorado—Sultan 2d, Vashti, Mufti, Sheik, and Khorassan.

Best thoroughbred Ewe.

Thomas & Shirland, Placer—Four does.
Thomas Butterfield & Son, Hollister.
Landrum & Rogers, Watsonville.

Best pen of five Kids.

Thomas Butterfield & Son, Hollister.

Landrum & Rogers, Watsonville.
N. Gilmore, El Dorado.

CLASS II—GRADES.

Best Buck and ten of his Kids.

Thomas Butterfield & Son, Hollister.
Landrum & Rogers, Watsonville.

Best pen of ten belonging to one owner.

Thomas Butterfield & Son, Hollister.
Landrum & Rogers, Watsonville.

SWINE.

BOARS.

Best Boar two years old and over.

Charles Green, Rio Vista—George.
R. S. Thompson, Napa—Excelsior.
William B. Hunt, Sacramento—Liberator, imported.
James Moore, Freeport—Dick, Berkshire.
M. Sprague, Sacramento—Dick, Berkshire.

Best Boar under two years.

M. Wick, Oroville—Ohio Butler.
R. M. Sparks, Marysville—Torento.
R. S. Thompson, Napa—Napa Dexter and Crown Prince, Jr.
Cannon & Staples, Suisun—Jake and Dick.

Best Boar six months and under one year.

Cannon & Staples, Suisun—Billy.
Charles Green, Rio Vista—Roan.
R. S. Thompson, Napa—No. 2.

SOWS.

Best breeding Sow two years old and over.

Charles Green, Rio Vista—Ella.
R. S. Thompson, Napa—America.
James Moore, Freeport—Betsy Eliza, Essex.

Best breeding Sow over one year.

R. S. Thompson, Napa—Belle.

Cannon & Staples, Suisun—Susie and Stripeface.
Peter Burns, Sacramento—Dolly.

Best Sow six months, and under one year.

Cannon & Staples, Suisun—Fanny.
Charles Green, Rio Vista—Susie and Mary.
R. M. Sparks, Marysville—Bettie.
R. S. Thompson, Napa—Dolly Varden.

PIGS.

Best pen of six Pigs, five months and under ten.

R. M. Sparks, Marysville.
R. S. Thompson, Napa.
Cannon & Staples, Suisun.
M. Sprague, Sacramento.

Best pen of ten Pigs of any age or breed, owned by any one person.

Cannon & Staples, Suisun.
R. S. Thompson, Napa.
Charles Green, Napa.
James Moore, Freeport—Essex and Berkshire.

MULES.

Justin Gates, Sacramento—Pair roadster mules, Pete and Barney.

POULTRY.

Peter Burns, Sacramento—Lot of geese, White Dorking chickens, Jersey Blue chickens, Light Bramahs (best lot of any distinct variety), lot of Topknot ducks (three varieties).

GOLD MEDAL CLASS.

Coleman Younger, San José, enters in competition everything heretofore entered in his name.

John Hall, of Alvarado, likewise enters his stock.

ARTICLES EXHIBITED AT THE PAVILION.

SECOND DEPARTMENT.

CLASS I—MACHINERY, ENGINES, ETC.

Treadwell & Co., San Francisco—Best display of general machinery from one house.

Baker & Hamilton, Sacramento—Baxter's portable engine.

James Cummings, Ione City, Amador County—Cummings' adjustable turbine waterwheel.

J. A. Leaman, Cincinnati, Ohio—Leaman's automatic car coupling.

O. J. Backus, San Francisco—Isaac Hyde's combined waterwheel and sewing machine.

James Pearson, Sacramento—Pearson's car coupling.

Treadwell & Co., San Francisco—Headley's portable steam thrashing engine.

Waterhouse & Lester, Sacramento—Dole's tenoning machine.

C. B. Brown, Placerville—Brown's self-generating gas burner for mines and mills.

Treadwell & Co., San Francisco—Best display of agricultural machinery from one house.

R. Haskins, Dutch Flat, Placer County—Little giant hydraulic pipes and universal joints for hydraulic mining.

Edwin S. Squires, Sacramento—Working engine, one horse power.

CLASS II—AGRICULTURAL MACHINES.

Treadwell & Co., San Francisco—Russell's thrashing machine and separator, with Laufenberg's patent shaking shoe.

Treadwell & Co., San Francisco—Arbeiter's lawn mower.

Baker & Hamilton, Sacramento—Pitts' California thrasher.

Baker & Hamilton, Sacramento—Best sweep horse power.

Baker & Hamilton, Sacramento—Lock lever horse hay rake.

C. H. Hubbard, Sacramento—Hay press.

W. H. McBurney, Sacramento—McBurney's model hay press, "Little Giant."

M. S. Bowdish, San Francisco—Atwood & Bawell's sweep horse power, "Little Giant."

Fish Bros. & Higgins, Sacramento—(at Park), one thrashing machine.

Baker & Hamilton, Sacramento—Eagle straw cutter.

T. C. Churchman—Sweep horse power.

Treadwell & Co., San Francisco—Horse rake, "Ithaca."

Thomas Orchard, Sacramento—Two well augurs.

Thomas Orchard, Sacramento—Post augur.

CLASS III.

J. M. Betts & Co., Sacramento—M. S. Gorham's broadcast seeder and cultivator combined.

W. B. Ready, Sacramento—Clipper mowing machine.

Charles Harriman, Sacramento—Double rotary harrow.

Baker & Hamilton, Sacramento—Iron harrow.

E. F. Aitken, Sacramento—Horse corn cultivator.

Baker & Hamilton, Sacramento—Tubular harrow.

Mathison & Williamson, Stockton—Chisel cultivator.

R. Jones, agent of Keller & Co., Sacramento—Mowing machine (IXL), Excelsior.

Baker & Hamilton, Sacramento—Two-horse corn cultivator.

CLASS IV.

Nichols, Falvey & Co., Sacramento—Beehive.

Treadwell & Co., San Francisco—Fanning mill, "Pacific," double shake.

M. Barthell, Sacramento—Farm gate.

W. D. Freeman, Tomales, Marin County—Freeman's grain separator.

M. S. Bowdish, San Francisco—Challenge feed mill.

Charles A. Johnson, San Francisco—Johnson's portable fence.

M. S. Bowdish, San Francisco—Excelsior windmill, self regulating and adjustable.

E. S. Brooks, Bodega, Sonoma County—Model for farm gate.

Nash, Miller & Co., Sacramento—Grain separator and fanning mill combined.

J. S. Harbison, Sacramento—Beehive.

J. C. Bowder, Farmington, San Joaquin County—Separator.

M. R. Rose, Sacramento—Self-regulating windmill (at Park).

CLASS V.

E. Groat, Napa City—Five churns and butter workers combined.

Treadwell & Co., San Francisco—Clothes wringer.

Reynolds & Fuller, Sacramento—Robert Hennan's wash boilers and machines combined.

Colonel Warren, San Francisco—Jebb's patent churn.

E. M. Tyler, Dixon, Solano County—Harper's patented fly trap.

John A. Ball, Grass Valley—Elevator or water lifter, by hand power.

Treadwell & Co., San Francisco—Tank steam pump, Blake's patent; mining pump; irrigating pump.

S. A. Wise, San Francisco—Goodwin's deep well pump; apparatus for raising water for mining purposes.

E. B. Tenney, Ripon, Labette County, Kansas—Excelsior washing machine.

William H. Keep, Stockton—Globe pump, three sizes.

B. F. McCombs, Eureka—Freeman's Humboldt washing machine.

M. K. Rose, Sacramento—Deep well force pumps.

Richard Parker, of Parker & Hunt, Sacramento—Blakesley & Williams' patented steam pump or apparatus for raising water for irrigating purposes.

Mattison & Williamson, Stockton—Two hay forks.

CLASS VI.

Treadwell & Co., San Francisco—Fox's gang plow, "Golden State." Gang plow, Hale's patent.

A. McCall, Saratoga, Santa Clara—Sod gang plow.

Burns & Hackney, Mount Pleasant, Henry County, Iowa—Excavating and ditching machine.

A. N. Hanson, Stockton—Gang plow, "Irish Champion."

Treadwell & Co., San Francisco—Six plows for general purposes.

W. B. Ready, Sacramento—Two "Little Giant" gang plows.

Baker & Hamilton, Sacramento—Ironclad gang plow.

E. D. Sawyer, for Mannel & Sawyer, Napa City—Mannel patented gang plow; Champion deep tilling stubble plow, made at Napa City.

Myers & Gummou, Marysville—Subsoil gang plow.

Baker & Hamilton, San Francisco—Deep tiller plow.

Matteson & Williamson, Stockton—Sulky gang plow.

Baker & Hamilton, Sacramento—Eureka gang plow, made by Sweepstake Plow Company.

Baker & Hamilton, Sacramento—"Marysville Chief;" two gang plows.

Charles Kewen, San Francisco—Two gang plows.

Treadwell & Co., San Francisco—Sidehill plow, "Scoville's Climax."

CLASS VII.

Treadwell & Co., San Francisco—Whitewater's farm wagon.

Baker & Hamilton, Sacramento—Bain's wagon.

Joseph Hill, Sacramento—Farm wagon, spring market wagon, two-horse family carriage, and two-horse farm wagon.

Treadwell & Co., San Francisco—Whitewater's farm wagon with California bed and brake.

Fish Brothers & Higgins, Sacramento—Wagon gear complete.

E. E. Ames, Sacramento—Three farm wagons for general purposes.

Waterhouse & Lester, Sacramento—Carriage materials and trimmings, carriage wheels, hubs, etc.

Knapp & Ferris, Sacramento—Labelle's patent thimble skein farm and freight wagon with truss brace, for general use; Labelle's wire axle wagons, for general use.

Pollard & Carvill Manufacturing Company, San Francisco—Two horse family carriage; one-horse family carriage; two-horse Sander's carriage; top buggies; trotting wagon.

Henderson & Clark, Stockton—One-horse family carriage, "The Victoria;" light top buggy; light trotting buggy; set carriage wheels.

J. Henschel, Sacramento—Top buggy.

E. Soule, San Quentin—Three farm wagons (complete).

J. A. Mason, Sacramento—Two-horse family carriage; one-horse family carriage; top buggy; trotting wagon; open buggy, side spring.

H. M. Bernard, Sacramento—Two-horse top family carriages; spring market wagon; street goods wagon; thoroughbrace wagon; top buggies.

K. Jones, Sacramento—Farm wagons for general purposes.

Kimball Manufacturing Company, San Francisco—Two-horse family carriage (phaeton); two-horse family carriage (Rockaway); one-horse family carriage (top phaeton); two-seated open carriage; trotting wagon; one-horse farm carriage (open phaeton); one-horse farm carriage, wood springs.

THIRD DEPARTMENT.

CLASS I.—TEXTILE FABRICS, AND MATERIALS FROM WHICH THEY ARE MADE.

Mrs. Dwight Pierce, Sacramento—One foot mat.

Madam Adam Fuchs, Sacramento—Rag carpet, twenty-four yards.

Mrs. S. M. Hoover, Elk Grove—One woven bedspread; one pair knit stockings, knit by a woman aged one hundred and two years.

Mrs. Hattie W. Baker, Sacramento—One rag rug.

Alexander Mackay, San Francisco—Two pieces of list carpet.

Mrs. Eveline Morris, San Francisco—Two pieces of rag carpet.

Mrs. E. D. Luscum, Sacramento—One chenille hand-made rug.

Mrs. E. Morris, San Francisco—Two cases gents' furnishing goods.

Mrs. Marie Dewey, Michigan Bar—One braided floor mat; one rose door mat; one knitted lace window curtain.

W. C. Wilkinson, Sacramento—Sample of wool on exhibition, two feet and one inch long.

Mrs. W. C. Barrett, Sacramento—Display of hat and bonnet frames, home manufacture; wire framework.

Miss Minnie Barrett, Sacramento—Worsted work, imitation of brick walk (girl aged seven years).

S. Wilzinzki, Sacramento—One case gents' furnishing goods; display of white shirts; gents' under garments; cravats, neckties, bows, collars, cuffs, socks, gloves, etc.

Capital Woolen Mills, Sacramento—Ten pieces cassimere; eight pieces flannel; six pairs blankets.

Mrs. Lewis Whittier, Sacramento—One rag rug.

Mrs. A. S. Morrison, Sacramento—One rag rug.

Mrs. J. H. Haskell, Sacramento—One pair knit stockings, knit for State Fair of eighteen hundred and seventy-two—aged seventy-eight years.

W. Sharp & Co., Sacramento—Two fine Axminster carpets and rugs.

Mrs. H. S. Higgins, Sacramento—One shell-knit quilt.

Jute Manufacturing Company, Brooklyn, Alameda Company—Display of raw and manufactured jute; ten potato sacks; ten grain sacks; five wool sacks; two skeins raw jute; one package twine, four strands; one package twine, five strands; one package twine, three strands; one package yarn; two bolts of potato gunny cloth; two bolts of grain gunny cloth.

Mrs. J. C. Gage, Stockton—One gent's shirt, made by hand.

W. R. Strong, Sacramento—New Zealand flax in different stages, and New Zealand flaxseed.

Huntington, Hopkins & Co., Sacramento—Best display of cordage, manufactured by Tubbs & Co., San Francisco. Exhibited in lower hall, and entered for silver medal.

Mrs. E. Hammond, Sacramento—Crochet bedspread.

Michael Kraker, Sacramento—One case shoulder braces and corsets, entered for silver medal; two cases fancy articles, entered for best display; best display drygoods.

Mrs. H. Kuhl, Sacramento—One pair knit drawers; one knit shirt.

Mrs. Joseph Hill, Sacramento—Three rag rugs.

Mrs. J. A. Odbert, Sacramento—One silk rag rug; one worsted rag rug.

CLASS II.

M. T. Barr, Sacramento—Six saddle trees.

J. E. Parker, Sacramento—Six sets double carriage harness.

J. T. Stoll, Sacramento—Platoon carriage harness; set single imperial rubber harness; four Mexican saddles; Mexican horsehair, silver-mounted; Mexican square baster, silver-mounted; Mexican baster, round, silver-mounted; boy's saddle; display of whips and bits; kersey horse blanket; halters, jaquimas, and saddle pockets; four saddle trees.

J. D. Lehman, Stockton—Four saddle trees.

Jacob Eberhart, Santa Clara—Display of leather, goat, sheep, and calf-skin.

J. T. Stoll, Sacramento—Express wagon single harness; set light double farm harness.

C. H. Krebs, Sacramento—Display of paper hangings and border decorations.

Huntington, Hopkins & Co., Sacramento—Best display of rubber hose and belting, entered for silver medal.

Mrs. L. Steudeman, Sacramento—Best pair ladies' gaiters; best pair ladies' slippers; best pair ladies' boots; display of ladies' and girls' boots, shoes, gaiters, slippers, etc.

P. Mengle, Stockton—Pair French morocco tongue boots; pair French morocco double-sole boots; three pairs box-toed gaiters.

Dewey & Co., San Francisco—Bound volumes of Pacific Rural Press, Mining and Scientific Press; files of the Mercantile Director; patent elastic newspaper file holder and binder; California published and printed agricultural and industrial books.

CLASS III.

Mrs. T. S. Harris, Sacramento—Display of ladies' underclothing.

Mrs. T. E. Coleman, Grafton, Yolo County—Worsted wreath.

Mrs. Maria Carrington, Sacramento—Two log-cabin quilts.

Mrs. A. M. Plummer, Brighton—Canada thistle quilt; leopard lily quilt.

Mrs. John Minford, Sacramento—Knit bedspread; four tatting collars.

Jim Jackson, Elk Grove—Log cabin quilt; two night caps; one collar; blazing star quilt.

Mrs. W. H. Haynie, Sacramento—Fancy home-made quilt.

Mrs. John Studaros, Brighton—Frame silk artificial flowers; frame hair work; frame wool work artificial flowers.

Miss Emma Winning, Sacramento—Hair wreath.

Mrs. H. H. Pierson, Sacramento—Ottoman cover; star tapestry work.

Mrs. M. S. Bowdish, Vallejo—Two pair chamois skin gauntlets; pair lady's buckskin gauntlets; three pair gentlemen's buckskin gauntlets; two pair gent's plain working gloves.

Mrs. Eliza W. Bates, Elk Grove—Log cabin quilt.

Mrs. J. H. Winn, Sacramento—Needlework picture (fishing party).

A. H. Wilgus, Buckeye, Yolo County—Log cabin quilt; two patchwork quilts.

Miss Emma Kreuzberger, Sacramento—Three pieces tapestry work.

Mrs. H. H. Curtis, San José—Case wax flowers.

M. S. Peelor, San José—Worsted tidy; embroidery.

Annette N. Peelor, San José—Ottoman cover.

Mrs. E. Parsons, Sacramento—Pebble monument.

Mrs. A. Weston, Sacramento—Patchwork quilt, by a lady seventy-one years of age.

Mrs. E. Parsons, Sacramento—Four frames natural flowers.

Miss Lillie L. Cooms, Elk Grove—One wreath of feather flowers.

Miss Emma Tubbs, Sacramento—One tatting tidy.

Mrs. E. J. King, Sutter Creek—Three quilts—two large and one small.

Miss Clara Orth, Sacramento—One wax cross.

Mrs. Maria Dewey, Michigan Bar—Two pincushions.

Mrs. Mollie Hahn, Sacramento—One infant's embroidered dress, one infant's embroidered silk skirt, one infant's embroidered silk shawl, and one infant's crochet afghan.

F. P. Medina, San Francisco—Two shell frames.

Mrs. L. Bruckerman, Howland Flat, Sierra County—One embroidered linen handkerchief.

F. M. Lindley (entered for Mrs. Drake, Sacramento)—Display of ladies clothing.

Mrs. P. H. Akin, Michigan Bar—One patched quilt of one thousand two hundred and seventy-two pieces.

Mrs. E. Parsons, Sacramento—One shell sample.

Mrs. C. M. Landres, Sacramento—Three dresses—hand needle work.

Miss Lizzie Crackbon, Sacramento—Five seaweed pictures.

Mrs. Moore, Sacramento—One case shell work, and one seaweed picture.

Mrs. L. Mebius, Sacramento—One phantom bouquet, one embroidered rug, and one embroidered sofa pillow.

S. Wilzinski, Sacramento—Two men's suits, three embroidered children's suits, one braided child's suit, four children's cloaks, and twenty boys' suits.

Mrs. C. L. Cross, Woodland—One stool cover.

Mrs. Belle McGuire, Sacramento—Two bouquets of wax flowers, and one case pond lily.

Miss Harriet F. McCormick, Sacramento—One sofa cushion.

Mrs. Louis Whitton, Sacramento—One paper frame.

Mrs. Bowdish, Vallejo—One tatting collar.

Mrs. A. O. Cook, San Francisco—One Greek slave in wax; six cases wax work; wax shells, pond lilies, wax flowers, wax fruits, wax hands, Spiritu Santa; one frame, phantom leaves; one case phantom flowers; two frames moss wreaths; one frame wax flowers; one frame Autumn leaves; one frame preserved natural flowers, without wax; one case preserved natural flowers, without wax.

Mrs. E. Bigley, Sacramento—One shell castle.

Mrs. D. E. Arnold, Sacramento—Three cases hair work.

Mrs. E. S. Mitchell, Sacramento—One case pond lilies in wax.

Mrs. Alice Everts, Sacramento—One embroidered flannel skirt.

Mrs. Joseph Perrin, Grass Valley—One table cover, raised worsted work.

Mrs. Mary Wetzler (for Mrs. Mary Morton, Sacramento)—One embroidered chair; one sofa pillow; two cushions.

Mrs. L. Mebius, Sacramento—One embroidered fire screen.

Miss Mary Saunders, Sacramento—Two tidies.

Madam Anna Gettz Lucas, San Francisco—Two cases enameled flowers; one basket preserved flowers, without wax; three pieces wax statuary; one vase; one cross; one foot and hand of a child, from a living model; five pieces wax flowers; two bowls wax flowers; one case pond lilies; two small vases; nine dishes wax fruit; three pieces wax work (special entry); one dish confectionery; one dish cakes; one dish oysters; one white wax cross (special entry); one rustic cross, decorated, (special entry); one wax vase, and Autumn and exotic leaves.

Miss Nellie Brooks, Sacramento—One basket wax flowers; one wreath Autumn leaves; two bouquets wax flowers and vase; one Greek Slave; two wax crosses.

Mrs. J. C. Cotter, San Francisco—One case wax fruit; four pieces wax flowers; two baskets and two vases; one case pond lilies; one case preserved natural flowers, without wax, paint, or whitewash; one case skeleton leaves.

Mrs. W. C. Barrett, Sacramento—Assortment of artificial flowers; silk bonnet, fine workmanship.

Mrs. S. W. Sanderson, Sacramento—One blue satin pincushion.

Mrs. J. H. Carroll, Sacramento—One large afghan; one pincushion; one handkerchief case; two card counters; one chair cover, in worsted; two footstool covers, in worsted; one smoking cap; one seaweed album.

Mrs. L. S. Sherman, San Diego—One Java canvas toilet set and one Java canvas tidy; one embroidered wool tidy; two crochet sacques; one infant's shirt.

Miss Christina Deterding, Brighton—One hair wreath; one feather wreath.

Mrs. L. S. Sherman, San Diego—One netted tidy.

Miss Emma Hartwell, Sacramento—One button monument, by girl nine years old.

Miss Ida Ross, Oakland—One Easter cross, in wax; one basket of fruit, in wax; one white lyre, in wax; one case preserved natural flowers, without wax.

Mrs. S. T. Smith, Sacramento—One basket of paper flowers.

Mrs. C. W. Adams, Sacramento—One crochet worsted tidy; five transferred work collars; one air castle.

Mrs. R. T. Brown, Sacramento—One child's afghan; one child's embroidered skirt.

Mrs. J. P. Odbert, Sacramento—One silk quilt; one log cabin quilt.

Mrs. R. K. Wick, Sacramento—Two burial robes.

Maria Goethe, Sacramento—One hair wreath.

Miss Ida Ross, Oakland—Sheet wax; one case pond lilies.

Mrs. S. D. Bell, Sacramento—One velvet ottoman.

Miss Belle M. Hill, Sacramento—Two worsted mats; five tidies; one bead mat; one bracket.

Miss Jennie E. Hill, Sacramento—Four tidies; two sofa cushions; eleven mats.

Mrs. S. Whittier, Sacramento—One silk patchwork quilt; one worsted crochet tidy.

Mrs. Springer, Sacramento—Two velvet bonnets; two hats; one Leghorn hat; two children's hats; one bridal veil and flowers.

J. C. Meussdorffer, Sacramento—Four gents' XXX moleskin hats; one gents' XXX moleskin hat, adhesive lining; one lady's black silk riding hat; gents' soft silk plain and stitched hats; silver beaver and soft hats; soft black beaver hats; children's, youths', and boys' hats; best exhibit of men's hats and caps.

D. H. Quinn, Sacramento—Two silver beaver hats, XXX; two silver beaver hats, No. 1; two nutria beaver hats, XXX; two black beaver hats, No. 1; two black beaver hats, XXX; five soft silk hats; three pearl felt hats; seven black felt hats; seven boys' felt hats; two silk caps; four cloth caps; four silk hats, No. 1, XXX; best collection of furs.

Miss Belle McGuire, Sacramento—One wax cross.

Miss Louisa Myers, Sacramento—Two worsted pictures.

Miss Vandenberg, Sacramento—Three worstod mats.

B. Duperow, Sacramento—Display of Siberian furs.

Mrs. Eveline Morris, San Francisco—Sample of embroidery.

Michael Kraker, Sacramento—Best display of ladies' and children's clothing.

Mrs. B. B. Cutter (for Mrs. S. E. Robinson, Sacramento)—Two pillow cases; one sheet and linen embroidery; one embroidered linen handkerchief; one embroidered flannel skirt; one embroidered sofa pillow; one embroidered tidy, made by a lady seventy-two years old.

Mrs. H. Kuhl, Sacramento—One crochet shawl; two lamp stand mats; one knit cloak; best display of knit and crochet goods; one child's afghan, crocheted and embroidered; one embroidered infant's long dress; one embroidered skirt; one embroidered sacque.

Mrs. E. W. Bates, Elk Grove—One log cabin quilt.

Mrs. A. Weston, Sacramento—One silk patchwork quilt; two calico patchwork quilts.

Mrs. N. W. Brooks, Sacramento—One frame pressed flowers.

Mrs. M. F. Gardner, Sacramento—One worsted afghan.

Mrs. B. B. Cutter (for Mrs. Robinson, Sacramento)—Drapery for a corner shelf, embroidered in beads; one embroidered chair.

Mrs. Fred. Cox, Sacramento—One moss picture.

Miss Minnie Bischke, Sacramento—One hair bouquet.

Mrs. L. Wilsey, Sacramento—One frame, sea moss.

FOURTH DEPARTMENT.

CLASS I—WORKED METALS.

J. Campbell, Sacramento—Display of wire goods.

Huntington, Hopkins & Co., Sacramento—Door trimmings, window trimmings, shutter and blind trimmings, axes, locks, general hardware, mechanics' tools, iron and steel, table cutlery, pocket cutlery, pruning shears, pruning knives, circular saws, mill saws, hand saws, anti-friction metal, and shot.

Locke & Montague, San Francisco—Display of kitchen.

Dr. Justin Gates, Sacramento—Silverware.

John C. Cass, Sacramento—Display of pocket cutlery; table cutlery.

F. B. Stevens, Sacramento—Hunters' patent pruning knives.

CLASS II.

G. W. Morgan, Sacramento—Specimen of marbleized stone, manufactured by Union Stone Company of Boston, Mass., under Soule's patent.

Locke & Montague, Sacramento—French cooking range and boiler, Eureka portable range and boiler, warming furnace or other apparatus (steam table), farmers cauldron or steamer, warming furnace or bathhouse heater, laundry stove.

CLASS III—MUSICAL INSTRUMENTS AND CABINET WARE, CALIFORNIA MANUFACTURE.

S. Look, San Francisco—Display of spring beds.

Mark Anthony, San Bruno Station—One rocking sofa and bed combined, one chair rocker and lounge combined, one chair and lounge combined.

A. Roman & Co., San Francisco—One Peard's patent folding school desk, one Peard's patent folding study desk.

R. S. Thompson, Napa City—One patent spring bed bottom.

R. C. Marsh, Sacramento—One guitar, California manufacture.

I. J. N. Meyers, San Francisco—One carondelet table.

W. S. Badger, San Francisco—Two square grand pianos—Hallet, Davis & Co.; one sixteen-stop, Geo. Woods & Co., cabinet organ; one ten-stop, Geo. Woods & Co., cabinet organ; one eight-stop, Geo. Woods & Co., Cabinet organ; one seven-stop, Geo. Woods & Co., cabinet organ.

E. Ford, Gold Run, Placer County—Round bur table.

A. A. Rosenberg, San Francisco—Original composition and California publication sheet music.

John Breuner, Sacramento—California laurel and walnut trimmed bedstead; California laurel and walnut trimmed bureau; California laurel and walnut trimmed washstand; California laurel and walnut trimmed somino; two gilt-embroidered chairs; gilt Turkish chair; sick chair; two rosewood sofas, brocatelle; two rosewood easy chairs; four rosewood parlor chairs; walnut parlor set (seven pieces), in green Jersey gilt; walnut parlor set, blue and striped; desk; glass door wardrobe; cylinder bookcase; gilt marble-top table; lounge; walnut chess table; walnut center table; lady's steamer chair; invalid lounge and mattress; pillow lounge, spring made; walnut leather office chair; walnut extension table; hair-top spring mattress; white hair mattress.

Mrs. Romualdo Pacheco, San Quentin—Lady's workbox of inlaid California wood.

James M. Bird, San Diego—Mosaic club table, thirty-seven thousand pieces on the top alone; three wood carved frames, carved with jackknife.

Mrs. Julia Harvey, San Francisco—Gilt showcase of Baumdaire paste.

Cooley & Green, Sacramento—Two spring beds, Crandell patent.

A. F. Sherwood, Sacramento—Four spring beds, Sherwood's patent.

John F. Cooper, Sacramento—Mathushek boudoir Colibri piano; Mathushek square parlor piano; Mathushek orchestral square grand piano; Derrick, Felgemaker & Co. portable pipe organ; Derrick, Felgemaker & Co. portable pipe organ, No. 5.

E. Soule, San Quentin—Medallion carved picture frame; square carved picture frame; five inlaid California wood toilet cases.

W. G. Badger, San Francisco—Square parlor piano.

CLASS IV.

Nichols, Falvey & Co., Sacramento—Lot of cedar ware; lot of oaken ware; lot of pine ware; lot of wooden ware.

R. S. Thompson, Napa City—Kimball & Nuband's patent improved window extension screen and mosquito bar.

W. D. Freeman, Tomales, Marin County—Display of wooden ware.

C. H. Krebs, Sacramento—Rustic window shades; display of gilt frames.

Nichols, Falvey & Co., Sacramento—Lot of willow ware; lot of brooms.

CLASS V.

John J. Cass, Sacramento—Case home-made cutlery.

CLASS VI.

W. C. Palmer, San Francisco—Knowlton's writing fluid.

H. C. Kirk & Co., Sacramento—One barrel of glue.

Jesse Healy, agent for California Chemical Paint Co., San Francisco—Averill's chemical paint, miscellaneous assortment.

C. H. Krebs, Sacramento—three cans capital varnish, from Capital Varnish Works; five gallons boiled linseed oil; white lead, from White Lead Works; five gallons castor oil, from Riggs Brothers', at Marysville; three samples coal fluid; three samples California paint; three barrels glue, from Pioneer Glue Factory, San Francisco; California turpentine, from Pioneer Distillery, Marysville.

CLASS VII.

N. Clark & Co., Sacramento—Sewer pipes; fire brick.

Carlton Newman, San Francisco—Display glassware; bottle display; bottle green display; tincture and other stoppered bottles; demijohns, carboys.

G. W. Morgan, Sacramento—Dressed stone, manufactured by the Union Stone Company, Boston, Massachusetts, Sorel's patent; flooring; roofing; general collection of stoneware.

John Quigley, Alameda—Several specimens of salt, manufactured by the Alameda Salt Company; sacks table salt.

Mattison & Williamson, Stockton—Sample of California marble, from Copperopolis.

CLASS VIII.

A. Peri, Marysville—Collection of California birds.

Mrs. Emily Aubrey, Sacramento—Sample of photograph rock; sample of cactus root, found in Arizona.

D. De Bernardi, Sacramento—Four globes of gold fish.

Francisco Guidice, Newtown, El Dorado—Collection of photograph rock.

FIFTH DEPARTMENT.

CLASSES I AND II.

Bachmann & Neubourg, Sacramento—Three bales of hops.

G. M. Lewis, San José—One sack California wheat.

William N. Haynie, Sacramento—Two bales of hops.

J. N. Stoddard & Brothers, Wheatland—One sack of flour.

General John Bidwell, Chico—One sack of flour; one sack of Chile wheat.

Reddington & Williams, Sacramento—One sack Chile wheat; one sack of flour.

Keefer Mills, Butte County—One sack of flour.

F. Fisher, Brighton—One bundle yellow corn; one bundle mammoth Chile wheat.

William Van Woert, Chico—One small box wheat heads.

E. F. Sparks, Lincoln—Clubhead wheat.

CLASS III.

John Studam, Brighton, Sacramento County—Twelve watermelons.

W. W. Montgomery, Davisville, Yolo County—Half peck castor oil beans.

W. Harte, County Hospital of Sacramento—Three fourths bushel onions; one bushel potatoes; small box peppers.

Captain Littlefield, Sacramento—One pumpkin, marrowfat, last year's.

Jacob Kebee, Sacramento—Half peck white onions.

William Bihlee, San Francisco—Cabbages; sugar beets.

Samuel Henry, San Joaquin River—Pumpkins, six weeks old from blossom.

Samuel Stone, Sacramento—Six ears pop corn.

C. T. Wheeler, Sacramento—Giant Bocca onion, raised by H. H. Burwell.

J. H. Carrington, Florin—Sack peppers; box peanuts.

Robert Williamson, Sacramento—Collection of vegetables: Half bushel red potatoes; half bushel white potatoes; half bushel other kinds potatoes. Display of greatest variety: Twelve parsnips; twelve carrots; six long blood beets; six turnip beets; six sugar beets; one peck tomatoes; six heads lettuce; six drumhead cabbages; six flat Dutch cabbages; six red Dutch cabbages; half peck red onions; half peck yellow onions; half peck peppers; twelve roots salsify; six stalks celery; six marrow squashes; six Hubbard squashes; six crooked necked squashes; twelve ears sweet corn; six cucumbers; half peck dry white beans; half peck Lima beans; half peck kidney bush beans; greatest variety peas; half peck pole beans.

E. F. Aiken, Sacramento—Half peck field peas, half peck garden peas, variety of castor oil beans.

Peter Burns, Burns' Slough—Half peck red potatoes, peach blows; half peck white potatoes, half bushel yellow corn, sugar beets raised on red land without irrigation.

John Smith, Sacramento—Half sack tomatoes.

J. R. Nickerson, Sacramento—One large watermelon, one muskmelon.

R. J. Johnston, Sacramento—Table of vegetables.

John H. Wolfe, Sacramento—Three Peruvian watermelons, three mountain sweet melons, three yellow flesh melons, three white flesh melons, three ice cream melons, six marrowfat squashes, six custard squashes, six Valparaiso squashes, six Yankee pumpkins, one box tomatoes, twelve sweet corn, green, one bushel white corn.

N. W. Brooks, Sacramento—Two squashes.

D. De Bernardi, Sacramento—Table of vegetables.

John H. Wolfe, Sacramento—Half peck Lima beans, half peck tomatoes.

George E. Wolfe, Sacramento—Half peck castor beans.

Robert Williamson, Sacramento—Half peck castor beans, table vegetables.

C. W. Adams, Sacramento—Half peck Lima beans.

Mrs. S. M. Hoover, Elk Grove—Cucumbers.

John P. Odbert, Sacramento—Last year's marrowfat-squashes.

Dewey & Co., San Francisco—Late rose potatoes, grown by C. H. Dwinelle of Oakland, from seed imported by "Pacific Rural Press."

A. D. Pogal, Oakland—Samples of California seedling potatoes.

CLASS IV.

Best collection of Flowering Plants.

E. Parsons, Sacramento—Display of cut flowers; display of bouquets.

A. Ebel—Best collection of ornamental foliage plants; best collection of Australian plants; best collection of plants suitable for greenhouse, conservatory, and window culture.

T. O'Brien, Sacramento—Best collection of rare and new plants; best collection of flowering plants in bloom; best collection of ornamental foliage plants; best collection of fuchsias; display of bouquets; display of cut flowers.

CLASS V.

S. Cole, Gilroy—Two old cheeses; thirty-two cheeses under one year old; cheese press or molds.

J. S. Harbison, Sacramento—Best ten pounds honey.

CLASS VI.

J. N. Carrington, Florin, Sacramento County—Domestic wheat bread made by daughter, nine years old.

Mrs. H. H. Wiggins, Sacramento—One loaf domestic wheat bread.

Mrs. Wolfe, Sacramento—One loaf of domestic brown bread; one loaf domestic corn bread; one loaf domestic wheat bread; biscuits.

Mrs. J. M. Hoover, Elk Grove—Ten rolls of butter.

Mrs. Cronkite, Sacramento—Domestic wheat bread; brown bread; biscuits.

Mrs. E. F. Aiken, Sacramento—Ten pounds butter in rolls; soda biscuit; domestic corn bread; domestic brown bread; domestic wheat bread.

Mrs. J. P. Odbert, Sacramento—Butter.

SIXTH DEPARTMENT.

CLASS I.

G. W. Theolkel, Newcastle—One variety of peaches; one variety of persimmons.

R. L. Bampton, Washington, Yolo County—Three varieties of apples: Newtown Pippin, Rhode Island Greening, and Northern Spy; nine varieties of pears: Beurre d'Angon, Beurre Deal, Duchesse d'Angouleme, Glout Moccau, Louisa, Beurre de Jersey, Vicar of Winkfield; Beurre Rose Modales, St. Germain, Ganselo Bergamot.

Robert Williamson, Sacramento—One variety white Smyrna figs; three varieties seedling peaches: Orange Free, Accident, and George's Late Cling.

P. H. Murphy, Brighton—Four varieties apples: Seek-no-Further, Pound Pippin, Gravenstein, and Roxbury Russet; one variety orange quince; Bartlett pears.

A. S. Greenlaw, Sacramento—Thirty-five varieties apples; ten varieties pears.

Ira S. Bamber, Placerville—Fifty-two varieties apples; eighteen varieties pears; eleven varieties cling peaches; three varieties seedling peaches; sixteen varieties freestone peaches; ten varieties plums; two varieties nectarines.

J. W. Wolf, Brighton—Four varieties apples; three varieties pears; one variety peaches.

T. O'Brien, Sacramento—One variety pears.

T. B. Flint, Sacramento—One variety pears.

George H. White, Sacramento—One variety apples, by boy nine years old.

James Holland, Sacramento—Sixty-four varieties apples; thirty-one varieties pears; three varieties quinces.

W. L. Willis, Elk Grove—One variety quinces; one variety figs.

H. L. Hutchinson, Marysville—Thirty-eight varieties apples; thirty-one varieties pears; four varieties quinces; fourteen varieties plums; seven varieties figs.

James Crozier, Stockton—Thirty-eight varieties of apples, one variety of quince.

J. R. Nickeson, Lincoln—One hundred and sixty varieties of apples, seventy varieties of pears, one variety of quince.

A. S. Greenlaw, Sacramento—Pomegranates, plums.

James Holland, Sacramento—Two varieties of plums, two varieties of figs.

E. F. Aiken, Sacramento—One variety of salway peach.

August Ebel, Sacramento—One variety of pomegranate.

J. Routur, Brighton—Six varieties of late peaches—also entered for best variety, three varieties of plums.

E. Dane, San Francisco—Sixteen varieties of seedling peaches, three varieties of seedling peaches, five varieties of seedling pears, four varieties of seedling plums.

CLASS II.

Mrs. S. M. Hoover, Elk Grove—Thirty varieties of jellies, four varieties of jams, three varieties of butter, thirteen varieties of marmalades, five varieties of relishes, ten varieties of preserves, seven varieties of brandied fruits, ten varieties of spiced fruits, fourteen varieties of plain pickles, fourteen varieties of fresh fruits.

Miss Belle Johnston, Richland—Thirteen varieties of jellies.

L. A. Gould, Santa Clara—Two boxes of dried pears; two boxes of dried peaches; one box of dried gage plums; one box of dried old green plums; one box of dried yellow plums; one box of dried Washington plums; one box of dried prunes; one box of dried prunes de aga; two boxes of dried apples; one box of dried strawberries; one box of dried peas; one box of dried Lady Washington pears; one box of dried black cherries; one box of dried Napoleon Rugauan cherries; one box of dried gumbo; one box of dried currants; one box of dried Kittatinny blackberries; one box of dried tomatoes.

B. N. Bugbey, Folsom—Japanese chestnuts.

Robert Williamson, Sacramento—Twenty-five pounds dried apples; twenty-five pounds dried peaches; four boxes dried plums; half peck Languedoc almonds; model for a fruit drying house.

Clark & Harbison, San Diego—Ten pounds honey.

J. S. Harbison, Sacramento—Best ten pounds honey.

Mrs. J. P. Odbert, Sacramento—Nineteen varieties preserved fruits; twenty-five varieties canned fruits; thirty-six varieties jellies; twenty-five varieties pickles; four varieties catsup.

Ira S. Bramber, Placerville—twenty-five pounds dried apples; twenty-five pounds dried pears; twenty-five pounds dried peaches; twenty-five pounds dried plums; twenty-five pounds dried nectarines; ten pounds dried figs; five pounds dried prunes; three pounds dried blackberries; three pounds dried strawberries; three pounds dried gooseberries; three pounds dried elderberries; three pounds dried raspberries; three pounds dried currants; three pounds dried cherries.

Mrs. H. Cronkite, Sacramento—Four varieties of jellies; two varieties of catsup.

Miss Fannie M. Smith, Sacramento—One box dried apples; one box dried pears; two boxes dried plums.

Mrs. N. Clark, Sacramento—Thirty-four varieties of jellies; thirty-four varieties of preserves.

Mrs. E. F. Aiken, Sacramento—Thirty-nine varieties of canned fruits; thirty-five pounds dried fruits; twenty-five pounds dried peaches; twenty-five pounds dried plums; twenty-five pounds dried nectarines; twenty-five pounds dried purple egg plums; twenty-five pounds dried golden drop plums; twenty-five pounds dried Coe's golden drop plums; twenty-five pounds dried Hungarian prunes; twenty-five pounds dried currants; twenty-five pounds dried tomatoes; twenty-five pounds dried Clark's raspberries; twenty-five pounds dried golden plums; twenty-five pounds dried cup raspberries; dried Miami blackberries; dried Wilson blackberries; dried huckleberries; dried currants; dried blueberries; dried Lawton blackberries; dried apricots; dried Hungarian prunes, whole.

J. R. Nickeson, Lincoln—Fifty pounds dried apples.

Mrs. Hoover, Elk Grove—Ten varieties vegetable jellies.

E. Dane, Sonora—Twenty-five pounds dried peaches; twenty-five pounds dried plums; twenty-five pounds dried nectarines.

Mrs. Joseph Hale, Stockton—Varieties of jellies, prunes, canned fruits, and pickles.

SEVENTH DEPARTMENT.

CLASS I.

Heald's Business College, San Francisco—Six specimens penmanship, plain and ornamental.

Charles Prosch, San Francisco—One picture, in water colors.

Aaron Avants, Chico—One colored photograph.

Mrs. John Rivett, Sacramento—Three crayon drawings.

J. J. Agard, Sacramento—Two pencil drawings.

C. C. Brown, Sacramento—Six specimens of pen drawings and ornamental penmanship.

Miss M. E. Bowman, Sacramento—Three pen drawings and ornamental penmanship.

Selkirk & Fisher, San Francisco—Twenty-three specimens of plain photographs.

J. W. Tabor, San Francisco—Sixteen specimens of photographs; two photographs, retouched in India ink; one frame pictorial photograph; one equestrian photograph.

Miss H. H. Curtis, San José—One animal painting, in water colors; two pencil drawings.

Annie N. Peelor, San José—Four specimens of pencil drawings.

Emily S. Peelor, San José—Three specimens of pencil drawings.

H. G. Peelor, San José—Six landscape paintings, in water colors; one flower painting; two pencil drawings.

Mrs. E. Parsons, Sacramento—One medley picture.

Mrs. E. J. King, Sutter Creek—Two hand-made chromos.

A. Hart, San Francisco—Five landscapes, in oil: Last of the Mohicans; Scene from Deerslayer; Autumn Scene, Catskill Lake; Scene on the Hudson; View on the Rhine; one portrait painting, in oil.

G. H. Goddard, San Francisco—One painting, water colors.

Norton Bush, San Francisco—Nine landscape paintings, in oil: Panama Bay; Lake Nicaragua; Memory of the Tropics; Panama Beach; Morning in the Tropics; Evening in the Tropics; Catskill Creek; Morning and Evening; San Juan River, Nicaragua.

Mrs. John F. Cooper, Sacramento—One medley picture.

John Estell, Sacramento—One book of decalcomania pictures; one frame of decalcomania pictures.

Alva Duane, Farmington, San Joaquin County—One specimen of plain and ornamental penmanship, by a boy thirteen years old.

Mrs. J. N. Bingay, Sacramento—Nineteen pencil drawings.

C. R. Sites, Sacramento—One specimen pen drawing.

C. T. Wheeler, Sacramento—One photograph, retouched in water colors.

Bradley & Rulofson, San Francisco—Seven water-colored photographs; five photographs, retouched in water colors; one photograph, retouched in Inda ink; three crayon photographs; three plain photographs; one frame, Grand Lodge I. O. O. F.; one frame, county officers of San Francisco; one frame pictorial photographs, retouched in water colors; one frame pictorial photographs, plain.

Mrs. E. S. Mitchell, Sacramento—Two pencil drawings; one pastelle painting.

Madam Anna Gettz Lucas, San Francisco—Two water color paintings—flowers.

Mrs. Jane E. Cottar, San Francisco—Two pieces decalcomania painting on satin.

D. H. Woods, Sacramento—Seventeen portraits in oil; nine animal paintings in oil; six landscape paintings in oil.

William Keith, San Francisco—Six landscape paintings in oil; two marine paintings in oil; one fruit piece, in oil.

F. J. Lewis, Sacramento—One specimen of pen drawing; one specimen of pencil drawing.

Mrs. A. J. Perry, Sacramento—Eight landscape paintings in oil.

Mrs. W. Yule, Sacramento—One California fruit painting in water colors.

D. Kaltschmidt, San Francisco—Two portraits in oil; one portrait in water colors.

CLASS II.

Miss Kate E. Crocker, Sacramento—One original oil painting, "Still Life."

Howard Campion, San Francisco—One bunch of grapes in oil; two water color paintings.

Delong, Combs & Co., San José—Two medallions, three-quarters view, taken from a photograph.

J. C. Devine, Sacramento—Exhibition of sculpture; exhibition of statuary and busts in plaster; collection of marble works.

Michael Kraker, Sacramento—Display of statuary in bronze and marble, one case.

Delong, Combs & Co. (by J. W. Combs), San José—Two marble frames, Indian diggings.

CLASS III.

J. L. Brooks, Bodega, Sonoma County—One model farm gate.

Geo. G. W. Morgan, Sacramento—Design for a canal and narrow gauge railroad.

Frank P. Lowell, Sacramento—Design for carriage house and stable.

MISCELLANEOUS DEPARTMENT.

Bowen Brothers, San Francisco—Special exhibit of pure ground spices, yeast powder, etc.

Charles Green, San Francisco—Axle grease.

W. C. Palmer, San Francisco—General assortment of writing inks.

E. B. Tanney, Ripon, Kansas—Window sash balance.

William Blake, San Francisco—Blake's clothes renovator; Blake's simple dyes.

Waterhouse & Lester, Sacramento—Clark's patent buggy sun and storm shade.

B. H. Lyon, Honolulu, Sandwich Islands—Dr. B. H. Lyon's compound remedy for recent and chronic diseases, liniment and pills.

W. E. Gerber, agent for Schreiber & Howell, Sacramento—Six chiccory roots.

Dr. William Henley, San Francisco—Thirty cases wild cherry tonic.

Treadwell & Co., San Francisco—Patent spark arrester for thrashing machines.

Geo. G. W. Morgan, Sacramento—Samples of artificial stone, made by the Union Stone Company of Boston, Massachusetts; Soule's patent.

John Quigley, Alvarado, Alameda County—Collection of various kinds of salt for dairy purposes.

W. H. Keeps, Stockton—Three portable forges and blowers.

J. Campbell, Sacramento—One wire mattress.

D. C. Brown (for Peck & Brown), Sacramento—Rock River building paper.

Laufkotter Brothers, Sacramento—Stock's patent pump valve.

E. A. Wilcox, Sacramento—Crystalline hair toilet articles.

J. R. Johnson, Sacramento—Three stalks of tobacco.

Huntington, Hopkins & Co., Sacramento—Weston's patent differential pulley blocks; locomotive head-light.

San Francisco Wood Preserving Company, San Francisco—One piece worm-eaten wood; one piece worm-eaten plank; one piece worm-eaten buoy; one piece disinfected; one box elastic black varnish; one piece worm-eaten pile.

J. C. Gibson, Sacramento—Gibson's friction car brake; Gibson's switch alarm; Gibson's marble saw.

Thomas Donnelly, San Francisco—Four gross yeast powders.

D. A. Faulkner, Centerville—Patent punch.

Warren Wasson, Carson City—Bagholder; stove pipe damper.

Benjamin Pollard, Dutch Flat—Patent invalid bedstead.

J. Armstrong, San Francisco—American bottle filler.

Charles H. Gordon, Mokelumne — Wood boring and iron drilling machine.

J. D. Stote, Mokelumne—Leather harness.

SPEED PROGRAMME—1872.

THURSDAY, SEPTEMBER 19TH.

FIRST RACE—CLASS I.

Match Running Race—Mile heats; between Theodore Winters' b. f. Bonita, three years old, by Norfolk, dam Marguretta, by Lexington, and John Hall's br. f. Abi, three years old, by Woodburn, dam Peggy Ringgold. Stake, two thousand dollars.

Result.

Abi	1	1
Bonita	2	2

Time—1:46¾; 1:49.

Judges—C. F. Reed, J. M. Duncan, J. H. McAllister.

Timers—George H. Johnston, George A. Gilbert, William Hendrickson, —— Jackman.

SECOND RACE—CLASS II.

Running Race—Dash of one mile and a quarter; free for all. Purse, four hundred dollars; first horse, three hundred dollars; second horse, one hundred dollars.

Entries.

Names and pedigree of horses.	By whom entered.	Post Office address.
b. m. Demorett, by Young Melbourne, dam by Scythian	A. C. St. John	San José.
Netty Brown, by Rifleman, dam by Imported Sovereign	J. C. Tyler	Tehama.

Result—Did not fill.

THIRD RACE—CLASS III.

Trotting Race—Mile heats, three in five, free for all stallions. Purse, seven hundred and fifty dollars; first horse, five hundred dollars; second horse, one hundred and seventy-five dollars; third horse, seventy-five dollars.

Entries.

Names of horses.	By whom entered.	Post Office address.
blk. s. Hiram Woodruff	C. Stagg	San Francisco.
blk. s. General Reno	C. W. Moulthrop	Sacramento.
b. s. Ajax	S. B. Whipple	San Francisco.

Result.

Hiram Woodruff	withdrawn.		
General Reno	2	2	2
Ajax	1	1	1

Time—2:40¼; 2:34¼; 2:35.

Judges—C. F. Reed, J. M. Duncan, J. H. McAllister.

Timers—George H. Johnston, George A. Gilbert, William Hendrickson, —— Jackman.

FOURTH RACE—CLASS IV.

Trotting Race—Mile heats, three in five, free for all horses that have never trotted better than three minutes. Purse, seven hundred and fifty dollars; first horse, five hundred dollars; second horse, one hundred and seventy-five dollars; third horse, seventy-five dollars.

Entries.

Names of horses.	By whom entered.	Post Office address.
m. Stockton Maid	C. H. Sisson	Stockton.
g. m. American Maid	C. W. Moulthrop	Sacramento.
r. h. Pat Reardon	S. J. Hanchett	San Francisco.
br. g. Brown Mac	D. Dennison	Sacramento.
s. m. Aurora	J. L. Eoff	San Francisco.
b. m. Addie Lee	A. F. Smith	Sacramento.
g. m. Lady Blanchard	S. B. Whipple	San Francisco.
b. g. Charles F. Reed	John Plummer	Yolo.

Result.

Stockton Maid	drawn.
American Maid	drawn.
Pat Reardon	drawn.
Brown Mac	drawn.

Aurora	drawn.		
Addie Lee	2	2	2
Lady Blanchard	1	1	1
Charles F. Reed	dis.		

Time—2:41½; 2:42; 2:39.

Judges—C. F. Reed, J. M. Duncan, J. H. McAllister.

Timers—George H. Johnston, George A. Gilbert, William Hendrickson, —— Jackman.

FRIDAY, SEPTEMBER 20TH.

FIRST RACE—CLASS V.

Running Race—Mile and repeat, free for all three years old. Purse. seven hundred and fifty dollars; first horse, five hundred dollars; second horse, one hundred and seventy-five dollars; third horse, seventy-five dollars.

Entries.

Names and pedigree of horses.	By whom entered.	P. O. address.
ch. c. Monarch, by Norfolk, dam Sally Tompkins	A. Musick	Sacramento.
b. f. Irene Harding, by Jack Malone, dam Macaria	L. J. Rose	Los Angeles.
ch. f. Sappho, by Shiloh, by dam Owen Dale	George Treat	San Francisco.
b. g. Target, by Rifleman, dam Jenny Hull	Willis Hull	Tehama.

Result.

Monarch	4	2
Irene Harding	2	3
Sappho	3	4
Target	1	1

Time—1:45¾; 1:48½.

Judges—C. F. Reed, J. M. Duncan, John Boggs.

Timers—Robert F. Morrow, Budd Doble, J. H. McAllister.

SECOND RACE—CLASS VI.

Running Race—Mile heats, three in five, free for all. Purse, one thousand dollars; first horse, seven hundred dollars; second horse, two hundred dollars; third horse, one hundred dollars.

Entries.

Names and pedigree of horses.	Age.	By whom entered.	P. O. address.
br. f. Nettie Brown, by Rifleman, dam Imported Sovereign	4 years.	C. C. Tyler	Tehama.
b. s. Phil. Sheridan, by Norfolk, dam Bonnie Belle	5 years.	Geo. A. Johnson	San Diego.
b. m. Demorett, dam by Scythian	5 years.	A. C. St. John	San José.
br. m. Nell Flaherty, by Rifleman, dam Jennie Hull	5 years.	George Treat	San Francisco.

Result.

Nettie Brown	4	4	4	4	dis.		
Phil. Sheridan	3	2	3	2	1	1	1
Demorett	1	1	2	3	3	3	3
Nell Flaherty	2	3	1	1	2	2	2

Time—1:45¾; 1:46½; 1:44¾; 1:47½; 1:47; 1:51¼; 1:52.

Judges—C. F. Reed, J. M. Duncan, John Boggs.

Timers—Robert F. Morrow, Budd Doble, J. H. McAllister.

SATURDAY, SEPTEMBER 21ST.

FIRST RACE—CLASS VII.

Trotting Race—Mile heats, three in five, free for all double teams. Purse, seven hundred and fifty dollars; first team, five hundred dollars; second team, one hundred and seventy-five dollars; third team, seventy-five dollars.

Entries.

Names of horses.	By whom entered.	P. O. address.
b. m. Highland Mary and b. g. George Treat	A. F. Smith	Sacramento.
b. s. Ajax and blk. g. Moscow	S. B. Whipple	San Francisco.
b. m. May Fly and blk. m. Black Swan	J. L. Eoff	Sacramento.

Result.

Highland Mary and George Treat	2	2	2
Ajax and Moscow	1	1	1
May Fly and Black Swan	drawn.		

Time—2:47¼; 2:46; 2:45.

Judges—C. F. Reed, J. M. Duncan, John Boggs.

Timers—Robert F. Morrow, E. J. Lewis.

SECOND RACE—CLASS VIII.

Trotting Race—Mile heats, three in five, free for all horses that have never trotted better than two minutes and fifty seconds. Purse, seven hundred and fifty dollars; first horse, five hundred dollars; second horse, one hundred and seventy-five dollars; third horse, seventy-five dollars.

Entries.

Names of horses.	By whom entered.	Post Office address.
m. Stockton Maid	C. H. Sisson	Stockton.
b. m. Lady Winkler	T. McIntosh	Nord, Butte County.
g. m. American Maid	C. W. Moulthrop	Sacramento.
r. h. Pat Reardon	S. J. Hanchett	San Francisco.
s. m. Aurora	J. L. Eoff	Sacramento.
b. m. Addie Lee	A. F. Smith	Sacramento.
g. m. Lady Blanchard	S. B. Whipple	San Francisco.

Result.

Stockton Maid	drawn.
Lady Winkler	drawn.
American Maid	dis.
Pat Reardon	drawn.
Aurora	drawn.
Addie Lee	dis.
Lady Blanchard	1

Time—2:26¼.

Judges—C. F. Reed, J. M. Duncan, John Boggs.

Timers—Robert F. Morrow, E. J. Lewis.

MONDAY, SEPTEMBER 23D.

FIRST RACE—CLASS IX.

Running Race—Two miles and repeat, free for all three years old. Purse, seven hundred and fifty dollars; first horse, five hundred dollars; second horse, one hundred and seventy-five dollars; third horse, seventy-five dollars.

Entries.

Names and pedigree of horses.	By whom entered.	P. O. address.
ch. c. Monarch, by Norfolk, dam Sally Tompkins	A. Musick	Sacramento.
b. g. Target, by Rifleman, dam Jennie Hull	Willis Hull	Tehama.
r. f. Bonita, by Norfolk, dam Marguretta, by Lexington	Theodore Winters.	Davisville.
b. f. Irene Harding, by Jack Malone, dam Macaria	L. J. Rose	Los Angeles.

Result.

Monarch	4	dis.	
Target	2	2	2
Bonita	1	3	3
Irene Harding	3	1	1

Time—3:40¾; 3:43; 3:46.

Judges—C. F. Reed, S. T. Brewster, J. H. McAllister.

Timers—J. M. Duncan, C. S. Crittenden, George A. Gilbert.

SECOND RACE—CLASS X.

Trotting Race—Mile heats, three in five, free for all horses that have never trotted better than two minutes and forty seconds. Purse, seven hundred and fifty dollars; first horse, five hundred dollars; second horse, one hundred and seventy-five dollars; third horse, seventy-five dollars.

Entries.

Names of horses.	By whom entered.	Post Office address.
b. g. Jim Cook (formerly Lantern)	D. Dennison	Sacramento.
b. g. Broomcorn	J. S. McCue	San Francisco.
s. m. Rosedale	I. Eckhart	San Francisco.
b. m. Addie Lee	A. F. Smith	Sacramento.
blk. g. Moscow	S. B. Whipple	San Francisco.

Result.

Jim Cook	2	dis.	
Broomcorn	dis.		
Rosedale	3	2	2
Addie Lee	4	3	3
Moscow	1	1	1

Time—2:34¼; 2:34½; 2:34.

Judges—C. F. Reed, S. T. Brewster, J. H. McAllister.

Timers—J. M. Duncan, C. S. Crittenden, George A. Gilbert.

THIRD RACE—CLASS XI.

Pacing Race—Mile heats, three in five, free for all. Purse, six hundred dollars; first horse, four hundred dollars; second horse, one hundred and forty dollars; third horse, sixty dollars.

Names of horses.	By whom entered.	Post Office address.
s. g. Longfellow	John Daniels	San José.
b. g. Defiance	A. C. St. John	San José.
g. g. Billy Mayo	J. H. Swain	San Francisco.
s. g. Warrior (formerly Albany Boy)	J. L. Eoff	San Francisco.

Result.

Longfellow	3	3	2	3
Defiance	1	1	3	1
Billy Mayo	2	2	1	2
Warrior (formerly Albany Boy)	drawn.			

Time—2:21¼; 2:22¼; 2:24¾; 2:22¾.

Judges—C. F. Reed, S. T. Brewster, J. M. Duncan.

Timers—C. S. Crittenden, George A. Gilbert, J. H. McAllister.

TUESDAY, SEPTEMBER 24TH.

FIRST RACE—CLASS XII.

Trotting Race—Mile heats, three in five, free for all horses five years old. Purse, five hundred dollars; first horse, three hundred and fifty dollars; second horse, one hundred dollars; third horse, fifty dollars.

Entries.

Names of horses.	By whom entered.	Post Office address.
s. g. Frank	A. M. Plummer	Sacramento.
b. g. Charles F. Reed	John Plummer	Yolo.

Result—Did not fill.

SECOND RACE—CLASS XIII.

Trotting Race—Mile heats, three in five, free for all. Purse, one thousand dollars; first horse, seven hundred dollars; second horse, two hundred dollars; third horse, one hundred dollars.

Entries.

Names of horses.	By whom entered.	Post Office address.
b. g. Dexter	B. Rice	San Francisco.
b. m. May Fly	J. L. Eoff	San Francisco.
b. m. Mayflower	A. F. Smith	Sacramento.
b. s. Ajax	S. B. Whipple	San Francisco.
ch. g. Jerome	John Boggs	Colusa.
blk. m. Black Swan	H. W. Seale	San Francisco.
b. g. Regulator	B. E. Harris	San Francisco.

Result.

Dexter	2	5	4	4
May Fly	drawn.			
Mayflower	1	4	6	2
Ajax	4	2	3	dis.
Jerome	5	1	1	1
Black Swan	3	3	2	3
Regulator	6	6	5	5

Time—2:31¾; 2:31¾; 2:30½; 2:30½.

Judges—C. F. Reed, S. T. Brewster, J. M. Duncan.

Timers—George A. Gilbert, C. S. Crittenden, J. H. McAllister.

WEDNESDAY, SEPTEMBER 25TH.

FIRST RACE—CLASS XIV.

Running Race—Two miles and repeat, free for all; horses to be handicapped. Purse, one thousand dollars; first horse, seven hundred dollars; second horse, two hundred dollars; third horse, one hundred dollars.

Entries.

Names and pedigree of horses.	Weights up.	By whom entered.	P. O. address.
b. m. Irene Harding, by Jack Malone, dam Macaria	80 pounds	L. J. Rose	Los Angeles.
Modesto, by Veto	87 pounds	John Tyree	Stockton.
b. m. Alice May, by Woodburn, dam Peggy Ringgold	102 pounds	John Hall	Alvarado.
s. h. Thad Stevens, by Langford, dam Mary Chilton	103 pounds	P. Brandel	San Francisco.
b. m. Nettie Brown, by Rifleman, dam Imported Sovereign	90 pounds	J. C. Tyler	Tehama.
b. m. Nell Flaherty, by Rifleman, dam Jennie Hull	107 pounds	George Treat	San Francisco.

Result.

Irene Harding	3 3 2
Modesto	dis.
Alice May	2 dis.
Thad Stevens	4 1 1
Nettie Brown	1 2 3
Nell Flaherty	declared.

Time—3:40¼; 3:41¼; 3:45¾.

Judges—C. F. Reed, S. T. Brewster, Nathan Coombs.

Timers—J. M. Duncan, J. D. Carr, Henry W. Seale.

SECOND RACE—CLASS XV.

Trotting Race—Mile heats, three in five, free for all horses that have never trotted better than two minutes and thirty-five seconds. Purse, seven hundred and fifty dollars; first horse, five hundred dollars; second horse, one hundred and seventy-five dollars; third horse, seventy-five dollars.

Entries.

Names of horses.	By whom entered.	Post Office address.
blk. s. Hiram Woodruff	C. Stagg	San Francisco.
b. g. Jim Cook (formerly Lantern)	D. Dennison	Sacramento.
b. m. Lady Bell	E. M. Skaggs	Sacramento.
c. s. Baltimore Belle	S. J. Hanchett	San Francisco.
b. g. Broomcorn	J. S. McCue	San Francisco.
m. Coquette	J. F. Wilson	San Francisco.
s. m. Rosedale	I. Eckert	San Francisco.
b. m. Highland Mary	A. F. Smith	Sacramento.
g. m. Lady Blanchard	S. B. Whipple	San Francisco.
s. h. Traveler	H. W. Seale	San Francisco.
b. m. Lady Slasher	Ad. Mailliard	San Rafael.

Result.

Hiram Woodruff	drawn.
Jim Cook	2 2 2
Lady Bell	drawn.
Baltimore Belle	drawn.
Broomcorn	dis.
Coquette	drawn.
Rosedale	1 1 1
Highland Mary	3 3 3
Lady Blanchard	drawn.
Traveler	drawn.
Lady Slasher	drawn.

Time—2:34; 2:36; 2:37¼.

Judges—C. F. Reed, S. T. Brewster, Nathan Coombs.

Timers—J. M. Duncan, J. D. Carr, H. W. Seale.

THURSDAY, SEPTEMBER 26TH.

FIRST RACE—CLASS XVI.

Trotting Race—Two miles and repeat, free for all. Purse, one thousand dollars; first horse, seven hundred dollars; second horse, two hundred dollars; third horse, one hundred dollars.

Entries.

Names of horses.	By whom entered.	Post Office address.
blk. s. Hiram Woodruff	C. Stagg	San Francisco.
b. g. Dexter	B. Rice	San Francisco.
b. g. Broomcorn	J. S. McCue	San Francisco.
b. m. Mayflower	A. F. Smith	Sacramento.
b. s. Ajax	S. B. Whipple	San Francisco.
ch. g. Jerome	John Boggs	Colusa.

Result.

Hiram Woodruff	drawn.
Dexter	2 2
Broomcorn	drawn.
Mayflower	3 dis.
Ajax	drawn.
Jerome	1 1

Time—5:01¾; 5:02¾.

Judges—C. F. Reed, S. T. Brewster, William Watt.

Timers—E. J. Lewis, J. H. McAllister, J. M. Duncan, Nathan Coombs.

SECOND RACE—CLASS XVII.

Pacing Race—Two miles and repeat, free for all. Purse, six hundred dollars; first horse, four hundred dollars; second horse, one hundred and forty dollars; third horse, sixty dollars.

Entries.

Names of horses.	By whom entered.	Post Office address.
s. g. Longfellow	John Daniels	San José.
b. g. Defiance	A. C. St. John	San José.
b. g. Americus	J. S. Woods	Sacramento.
s. g. Warrior (formerly Albany Boy)	J. L. Eoff	San Francisco.

Result.

Longfellow	2	0	2
Defiance	1	0	1
Americus	dist.		
Warrior	drawn.		

Time—4:49¼; 4:47¾; 4:57¾.

Judges—C. F. Reed, S. T. Brewster, William Watt.

Timers—E. J. Lewis, J. H. McAllister, J. M. Duncan, Nathan Coombs.

THIRD RACE—CLASS XVIII.

Running Race—Single dash of one mile, free for all two years old. Purse, three hundred dollars; first horse, two hundred and fifty dollars; second horse, fifty dollars.

Entries.

Names of horses.	By whom entered.	Post Office address.
b. f. Lady Barnes	Theodore Winters	Davisville.
b. c. Budd Doble	Theodore Winters	Davisville.
b. c. Alexander Selkirk	A. Musick	Sacramento.

Result.

Lady Barnes	3
Budd Doble	1
Alexander Selkirk	2

Time—1:51½.

FRIDAY, SEPTEMBER 27TH.

FIRST RACE—CLASS XIX.

Running Race—Mile heats, three in five, free for all beaten horses. Purse, seven hundred and fifty dollars; first horse, five hundred dollars; second horse, one hundred and seventy-five dollars; third horse, seventy-five dollars.

Result—No entries.

SECOND RACE—CLASS XX.

Trotting Race—Mile heats, three in five, free for all horses that never trotted better than two minutes and thirty-two and a half seconds. Purse, seven hundred and fifty dollars; first horse, five hundred dollars; second horse, one hundred and seventy-five dollars; third horse, seventy-five dollars.

Entries.

Names of horses.	By whom entered.	Post Office address.
blk. s. Hiram Woodruff	C. Stagg	San Francisco.
b. g. Dexter	B. Rice	San Francisco.
b. m. Mary Davis	E. M. Skaggs	Sacramento.
c. s. Baltimore Belle	S. J. Hanchett	San Francisco.
b. g. Broomcorn	J. S. McCue	San Francisco.
s. m. Rosedale	I. Eckert	San Francisco.
blk. s. General Reno	C. W. Moulthrop	Sacramento.
b. g. George Treat	A. F. Smith	Sacramento.
blk. g. Moscow	S. B. Whipple	San Francisco.
g. m. May Howard	John Boggs	Colusa.
blk. m. Black Swan	H. W. Seale	San Francisco.

Result.

Hiram Woodruff	drawn.					
Dexter	3	4	5	4	4 r.o.	
Mary Davis	5	5	6	dis.		
Baltimore Belle	drawn.					
Broomcorn	drawn.					
General Reno	dis.					
George Treat	6	6	4	2	5 r.o.	
Moscow	1	1	3	5	2	1
May Howard	2	2	2	1	3	3
Black Swan	4	3	1	3	1	2

Time—2:30; 2:28¾; 2:32½; 2:32½; 2:32¾; 2:32.

Judges—C. F. Reed, S. T. Brewster, J. M. Duncan.

Timers—Robert F. Morrow, Budd Doble, George A. Johnson.

PREMIUMS AWARDED IN 1872.

FIRST DEPARTMENT.

LIVE STOCK.

THOROUGHBRED HORSES.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Stallions.				
Best stallion, four years old and over	Lodi	Nathan Coombs	Napa	$75
Best stallion, three years old and over	Photos	Nathan Coombs	Napa	$50
Best stallion, two years old and over	Alic	John Hall	Alameda	$40
Best stallion, one year old	Tommy	J. B. Damrell	Stockton	$30
Best stallion, under one year	Captain Harris	John Hall	Alameda	$20
Mares.				
Best mare, four years old and over, with colt	Peg. Ringgold.	John Hall	Alameda	$60
Best mare, four years old and over	Pastora	Joseph Gluckauf	Butte	$50
Best mare, three years old and over	Abi	James Mee	San Francisco.	$40
Best mare, two years old and over	Omaha	Charles Murphy	San José	$30
Best mare, one year old	Belle	A. Mailliard	San Rafael	$25
Best mare, under one year	Orient	Joseph Gluckauf	Butte County	$20
Families.				
Best thoroughbred sire, with not less than ten of his colts, all thoroughbred	Woodburn	John Hall	Alameda	$150
Best dam, with not less than four of her colts, all thoroughbred	Peg. Ringgold.	John Hall	Alameda	$100
Best stallion, other than thoroughbred, with not less than ten of his colts	Ethan Allen, Jr.	Wm. Hamilton	San José	$75
Best dam, other than thoroughbred, with not less than three of her colts	Sac'ento Belle	W. M. Haynie	Sacramento	$50

GRADED HORSES.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Stallions.				
Best stallion, four years old and over	High Die	C. P. Marsh	Oakland	$50
Best stallion, three years old and over	Inauguration	Alexander Ely	San Francisco.	$40
Best stallion, one year old	Blackbird, Jr.	D. M. Reavis	Chico	$20
Best colt, under one year, without reference to sex	Fanchon	Wm. Hamilton	San José	$20
Mares.				
Best mare, four years old and over	Y'ng Diamond	J. Sessions	Alameda	$40
Best mare, four years old and over, with colt	Winona	Wm. Hamilton	San José	$50
Best mare, three years old and over	Jennie Allen	Wm. Hamilton	San José	$30
Best mare, two years old and over	Trumps	Wm. Hamilton	San José	$20
Best mare, one year old	Flora	D. M. Reavis	Chico	$15

HORSES OF ALL WORK.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Stallions.				
Best stallion, four years old and over	Vibrator	Joshua Reeves	Lincoln	$40
Best stallion, three years old and over	Honest John	George Verinder	Latrobe	$30
Best stallion, two years old	Yolo Bill	S. L. Monday	Cacheville	$20
Best stallion, one year old	Jim	G. M. McWain	Marysville	$15
Mares.				
Best mare, four years old and over, with colt	Julian Ann	G. M. McWain	Marysville	$40
Best mare, four years old and over	Kate	M. Nicholson	San José	$30
Best mare, three years old and over	Kate Sportsm'n	J. H. Jackson	Cacheville	$20
Best mare, two years old	Camilla Urso	Wm. M. Haynie	Sacramento	$15
Best mare, one year old	Dolly Martin	S. L. Monday	Cacheville	$10

DRAFT HORSES.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Stallions.				
Best stallion, four years old and over	Giant Judge	R. A. Brunton	Dixon	$40
Best stallion, three years old and over	Robert Bruce	J. M. Dudley	Dixon	$30
Best stallion, two years old and over	Excelsior	C. M. Taylor	Cosumnes	$20
Mares.				
Best mare, four years old and over, with colt	Kate	Chris. Thodt	Dixon	$40
Best mare, three years old and over	Mary	J. A. Evans	Sacramento	$25

ROADSTERS.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Stallions.				
Best stallion, four years old and over	Blackbird	D. M. Reavis	Chico	$50
Best stallion, three years old	Membrino, Jr.	J. D. Carr	Monterey	$40
Best stallion, two years old	Blondin	Daniel Flint	Sacramento	$30
Best roadster gelding, four years old and over	Westfield	Eugene McCarty	Sacramento	$40
Mares.				
Best mare, four years old and over	Y'ng Oakland	J. Sessions	Alameda	$40
Best mare, three years old	Bessie Allen	Wm. Hamilton	San José	$30
Best mare, two years old	Fanny Allen	Wm. Hamilton	San José	$20
A special premium for a matched span of yearling colts in harness	Bucephalus and Sierra Boy	J. M. Garoutte	Woodland	Cup, $15

CARRIAGE HORSES.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Best matched span, owned and used as such by one person	Brown George and mate	E. Wilson	San Francisco.	Sil. gob. $40
Best double team roadsters, owned and used as such by one person.	Magna Charta and Olin	J. S. McCue	San Francisco.	Sil. gob. $40

SADDLE HORSES.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Best saddle horse	Rocklin	Thomas Showler	Sacramento	Fine bridle.

ROADSTER TEAMS.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Best roadster team	Lady Clara and Maggie	T. J. Gallagher	San Francisco.	Goblet, $25

COLTS.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Best yearling horse colt.	Jim	G. M. McWain	Marysville	$30
Best yearling mare colt.	Flora	John Neal	Sacramento	$20
Best sucking horse colt.	Rusher	L. H. Fassett	Sacramento	$20
Best sucking mare colt.	Maggie	G. M. McWain	Marysville	$15
Best exhibit of not less than six colts, of any age or sex, owned by one person	Fanny Allen, Bess. Allen, Lily, Flora, Sallie, and Dick Brown	Wm. Hamilton	San José	$50

SWEEPSTAKES.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Best stallion, of any age	Lodi	Nathan Coombs	Napa	Silver pitcher—$100.
Best mare, of any age	Hennie Farrow	A. Mailliard	San Rafael	Silver pitcher—$75.

CATTLE.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Durham Bulls.				
Best bull, four years old and over	Glencoe	C. Younger	San José	$75
Best bull, three years old and over	Daisy Duke	L. Pierce	San Francisco.	$40
Best bull, two years old and over	Dandy Jim	G. R. Vernon	San Jose	$30
Best bull, one year old and over	4th Grand Turk of Oak Home.	W. L. Overhiser	Stockton	$25
Best Durham bull calf	California Darlington	L. Pierce	San Francisco.	$15
Durham Cows.				
Best cow, four years old and over	Beauty	G. W. Swezy	Marysville	$50
Best cow, three years old and over	Peggie 1st	C. Younger	San José	$40
Best cow, two years old and over	Norma	C. Younger	San José	$30
Best cow, one year old and over	Flora Temple	W. L. Overhiser	Stockton	$20
Best heifer calf	Oxford Bride	L. Pierce	San Francisco.	$15
Devon Bulls.				
Best bull, four years old and over	Frn'k Quarterly	I. R. Rose	Sonoma	$75
Best bull, three years old and over	Phil. Sheridan	I. R. Rose	Sonoma	$40
Best bull, two years old and over	Gen. Sherman	I. R. Rose	Sonoma	$30
Best bull, one year old and over	Earl of Leicest'r	Wm. Fleming	Napa	$25
Best bull calf		I. R. Rose	Sonoma	$15

CATTLE—Continued.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Devon Cows.				
Best cow, four years old and over	Curly	I. R. Rose	Sonoma	$50
Best cow, three years old and over	Victoria	W. M. Fleming	Napa	$40
Best cow, two years old and over	Curly 3d	I. R. Rose	Sonoma	$30
Best cow, one year old and over	Nellie	I. R. Rose	Sonoma	$20
Best heifer calf		I. R. Rose	Sonoma	$15
Jersey Bulls.				
Best bull, four years old and over	Brian Boru	John Cooney	San José	$75
Best bull, four years old and over	Prince Albert	C. B. Polhemus	San José	Sp.–Dip'ma
Alderney Bulls.				
Best bull, three years old and over	Billy	Wm. Johnston	Richland	$40
Best bull, three years old and over	Solace	P. L. Weaver	Napa	Sp.–Dip'ma
Herd.				
Best herd of cattle, not less than ten, owned by any one person, all thoroughbred	Crown Prince and herd	M. Wick	Butte	$150
For herd of ten Devons.		I. R. Rose	Sonoma	Sp. recom'd
Best herd of cattle, of any one breed, not less than ten, belonging to one person	Lord Is-a-beau and herd	L. Pierce	San Francisco.	$150
Sweepstakes.				
Best bull, of any age or stock	Lord Is-a-beau.	L. Pierce	San Francisco.	$100—Silver pitcher.
Best bull and five of his calves, under one year.	Monkey John	R. M. Sparks	Marysville	$100
Best Jersey heifer, one year old and over	Melia	P. L. Weaver	Napa	$25
Best Ayrshire cow, two years old	Flora McIvor	L. A. Upson	Sacramento	$30

GRADED CATTLE.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Bulls.				
Best graded bull, three years old	Water Prince 1st	R. Ashburner	San José	$30
Best graded bull, two years old	Billy	I. B. Hobson	Auburn	$20
Best graded bull, one year old	Prince of Yuba	G. N. Swezy	Yuba	$15
Best graded bull calf	Sacramento	Cox & Clark	Sacramento	$10
Cows.				
Best graded cow, four years old and over	Kate	G. N. Swezy	Marysville	$30
Best graded cow, three years old	Roany	R. Ashburner	San Mateo	$20
Best graded cow, two years old	Kate Hayes	Charles Clark	Santa Clara	$15
Best graded cow, one year old	Bessy	L. Pierce	San Francisco	$10
Best heifer calf	Dolly Varden	C. Clark	Milpitas	$5
Sweepstakes.				
Best cow, of any age or stock	Sprightly	C. Younger	San José	$75—Silver pitcher.

We, the committee, do find that Monkey John, with five of his calves, is entitled to the premium of $100, and ask that the society award special premiums to Glencoe and five of his calves, First Duke of Yuba and five of his calves, and Airdrie Lad and five of his calves, they being of such superior quality that we find it difficult to decide as to their merits.

Signed:

FRED. COX,
J. M. JONES, Jr.,
L. BROOKS.

SHEEP.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Spanish Merino.				
Best ram, two years old and over	Green Mount'n	Thomas Cotter	Elk Grove	$30
Best ram, under two years	Comet, Jr.	Smith & Overhiser	Stockton	$20
Best three ram lambs		Thomas Cotter	Elk Grove	$20
Best three ewes, two years old and over		Thomas Cotter	Elk Grove	$20
Best three ewes, under two years old		Thomas Cotter	Elk Grove	$20
Best five ewe lambs		Smith & Overhiser	Stockton	$20

SHEEP—Continued.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
French Merino.				
Best ram, two years old and over		Smith & Overhiser	Stockton	$30
Best ewes, two years old and over (pen of three ewes)		R. A. Branton		$20
Silesian.				
Best three ewes, two years old and over		Robert Beck	Sacramento	$20
STOCK SHEEP AND MUTTON.				
Rams.				
Three Southdown rams		W. T. Wilson		Special rec.
Pen of eight graded wethers		H. A. Rawson		Special rec.
GRADED SHEEP.				
Cross, Leicestershire and Cotswold.				
Ram, under two years		W. T. Wilson		$20
Three ram lambs		H. A. Rawson		$20
Three ewes, two years old and over		H. A. Rawson		$15
Best five ewe lambs		H. A. Rawson		$15
Cross, Spanish Merino.				
Best ram, under two years		H. A. Rawson		$15
Best three ewes, two years old		W. T. Wilson		$15
Best three ewes, under two years		W. T. Wilson		$15
Best five ewe lambs		Chas. H. Watt		$15
Best three ram lambs		H. A. Rawson		$20
LONG-WOOL SHEEP.				
Best ram, two years old and over	Patriarch	Wm. Fleming		$50
Best ram, under two years	Zadoc	Wm. Fleming		$40
Best five ram lambs		Landrum & Rogers	Watsonville	$50
Best three ewes, two years old and over		Landrum & Rogers	Watsonville	$50
Best three ewes, under two years		Wm. Fleming		$30
Best five ewe lambs		Landrum & Rogers	Watsonville	$50

SHEEP—Continued.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Leicestershire.				
Best ram, two years old and over		W. T. Wilson		$30
Sweepstakes.				
Best ram and ten of his ewe lambs	Green Mount'n	Thomas Cotter	Elk Grove	$100
Best lamb of any age or breed	Comet	Smith & Overhiser	Grayson	$75
Best ewe of any age	No. 516	Smith & Overhiser	Grayson	$50
Best pen of any age or breed, not less than five		Thomas Cotter	Elk Grove	$75

GOATS.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Cashmere and Angora.				
Best thoroughbred buck	Sultan 2d	N. Gilmore	El Dorado	$50
Best thoroughbred ewe		Thomas & Shirland	Auburn	$40
Best pen of five ewes		N. Gilmore	El Dorado	$40
Graded.				
Best buck and ten of his kids		Landrum & Rogers	Watsonville	$75
Best pen of ten belonging to any one owner		Butterfield & Sons		$40

SWINE.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Best boar, two years old and over	Excelsior	R. S. Thompson	Napa	$50
Best boar under two years	Ohio Butler	M. Wick	Oroville	$30
Best boar six months, and under one year old	No. 2	R. S. Thompson	Napa	$20
Best breeding sow, two years old and over		R. S. Thompson	Napa	$40
Best breeding sow, one year old		Cannon & Staples		$30
Best breeding sow, six months, and under one year	Dolly Varden	R. S. Thompson	Napa	$20
Berkshire.				
Best pen of six pigs, five months and under		R. S. Thompson	Napa	$40
Essex and Berkshire cross.				
Best pen of ten pigs of any age or breed owned by one person		James Moore	Freeport	$50

GOLD MEDAL.

Coleman Younger, of San José, is awarded the Gold Medal of the society, for the most meritorious exhibition in the First Department, at the State Agricultural Fair held for the current year.

SACRAMENTO, September 27th, 1872.

POULTRY.

Animals.	Names.	Exhibitors.	Residence.	Premiums.
Best lot of geese		Peter Burns	Sacramento	$5
Best White Dorking chickens		Peter Burns	Sacramento	$5
Best lot of Jersey Blues		Peter Burns	Sacramento	$5
Best lot of Light Brahmas		Peter Burns	Sacramento	$5
One pair Brahmas		Mrs. R. L. Robertson	Sacramento	$5
Lot of Topknot ducks, three varieties		Peter Burns	Sacramento	$5
Lot of Norfolk chickens		Charles Green	Rio Vista	$5
Best lot of any other distinct variety		Peter Burns	Sacramento	$5

SECOND DEPARTMENT.

CLASS I—MACHINERY, ENGINES, ETC.

Articles.	Exhibitors.	Residence.	Premiums.
Best display agricultural machinery by any one house, California manufacture	Treadwell & Co.	San Francisco.	$50
Best portable and stationary engine, Eastern manufacture.	Baker & Hamilton.	Sacramento	Diploma.
Best portable engine, (Hoadley's patent), Eastern manufacture	Treadwell & Co.	San Francisco.	Diploma.
Best turbine water wheel, California manufacture	James Cummings	Ione City	Diploma and $25
Best tenoning machine for spokes, (Dole's patent), Eastern manufacture	Waterhouse & Lester.	Sacramento	Diploma.
Best model steam engine	E. S. Squires	Sacramento	Special—$25
Best self-generating gas burner.	C. B. Brown	Placerville	Diploma.
Best hydraulic pipes (Little Giant)	R. Haskins	Dutch Flat	Silver medal.
Combined water wheel and sewing machine	O. J. Backus	San Francisco.	Diploma.
Leaman's automatic car coupling	J. A. Leaman	Cincinnati, O.	Diploma.

CLASSES II AND III—AGRICULTURAL MACHINES.

Articles.	Exhibitors.	Residence.	Premiums.
Best thresher and separator machine, Eastern manufacture	Treadwell & Co.	San Francisco.	Diploma.
Best seed sower and cultivator combined	J. M. Betts	Sacramento	$10
Best sweep horse-power, California manufacture	T. C. Churchman	Sacramento	$10
Best hay press, California manufacture	C. H. Hubbard	Sacramento	$20
Best straw cutter	Baker & Hamilton	Sacramento	Diploma.
Best two-horse corn cultivator.	Baker & Hamilton	Sacramento	Diploma.
Best one-horse corn cultivator.	E. F. Aiken	Sacramento	Diploma.
Best chisel cultivator	Mattison & Williamson	Stockton	Diploma.
Best mowing machine (Excelsior)	R. Jones (agent for Keller & Co.)	Sacramento	Diploma.
Best tubular harrow	Baker & Hamilton	Sacramento	Diploma.
Model hay press (Little Giant)	Wm. H. McBurney	Sacramento	Diploma.
Best horse rake (Ithaca)	Treadwell & Co.	San Francisco.	Diploma.

CLASSES II AND III—Continued.

Articles.	Exhibitors.	Residence.	Premiums.
Best well auger, California manufacture	Thomas Orchard	Sacramento	Diploma and $5
Best post auger, California manufacture	Thomas Orchard	Sacramento	$5
Best set pruning knives	F. B. Stevens	Sacramento	Diploma.
Best lawn mower	Treadwell & Co.	San Francisco.	Diploma.

CLASSES IV AND V—AGRICULTURAL MACHINES, AND TOOLS AND IMPLEMENTS.

Articles.	Exhibitors.	Residence.	Premiums.
Best farm feed mill, California manufacture	M. S. Bowdish.	San Francisco.	$10
Best self-regulating windmill	Atwood & Bodwell	San Francisco.	$15
Best platform scale	Huntington, Hopkins & Co.	Sacramento	$5
Best farm gate, California manufacture	M. Barthel	Sacramento	$15
Best beehive (without bees)	J. S. Harbison	Sacramento	$3
Best portable fence	Chas. E. Johnson	San Francisco.	$20
Best grain separator	Nash, Miller & Co.	Sacramento	Diploma.
Best cheese press	S. Coles	Gilroy	$10
Best churn	E. Groat.	Napa City	Diploma and $10
Best butter worker	E. Groat.	Napa City	$5
Best washing machine	B. F. McCombe	Eureka	Diploma and $5
Best clothes wringer	Treadwell & Co.	San Francisco.	Diploma.
Best deep well force pump	M. R. Rose	Sacramento	$10
Best tule-cutter plow	A. McCall	Saratoga	Special—diploma.
Model grain separator	J. C. Bowden	Farmington	Diploma.
Best elevator or water lifter, by hand power	John A. Ball	Grass Valley	Special—diploma.
Best steam pump, California manufacture	S. A. West	San Francisco.	$20
Sidehill plow	Treadwell & Co.	San Francisco.	$5
Blake's patent tank steam pump, (Eastern manufacture)	Treadwell & Co.	San Francisco.	Diploma.
Best fly trap (Harper's patent)	E. M. Tyler	Dixon	Hon. mention.
Best model of a farm gate	E. S. Brooks	Bodega	Diploma.
Best horse hay fork	Mattison & Williamson	Stockton	$5
Best three sets stock pattern pump valves	Laufkotter Brothers	Sacramento	Hon. mention.

CLASS VI—PLOWS.

Articles.	Exhibitors.	Residence.	Premiums.
Best two-gang plow	William B. Ready	Sacramento	$40
Best plow for general purposes.	Myers & Gummon	Marysville	$10
Best subsoil plow	Myers & Gummon	Marysville	$10
Best stubble plow	Baker & Hamilton	San Francisco.	$10

CLASS VII—VEHICLES.

Articles.	Exhibitors.	Residence.	Premiums.
Best two-horse family carriage.	Pollard & Carvill Manufacturing Co.	San Francisco.	Diploma and $30
Best one-horse family carriage.	Pollard & Carvill Manufacturing Co.	San Francisco.	Diploma and $25
Best one-horse top buggy	Pollard & Carvill Manufacturing Co.	San Francisco.	Diploma and $20
Finest display of carriages	Pollard & Carvill Manufacturing Co.	San Francisco.	Special—diploma.
Best trotting wagon	Henderson & Clark	Stockton	Diploma and $15
Best set of carriage wheels	Henderson & Clark	Stockton	$10
Fine display of carriages and buggies	Kimball Manufacturing Co	San Francisco.	Diploma.
Good display of carriages and buggies	J. A. Mason	Sacramento	Diploma.
Fine trotting wagon	William P. Miller	Stockton	Diploma.
Best farm wagon, California manufacture	Joseph F. Hill	Sacramento	$15
Best display of farm wagons of Eastern manufacture	Steudebacher Bros	Sacramento	Special—diploma.
Best display of hubs, spokes, and felloes	Waterhouse & Lester.	Sacramento	Special—diploma.

THIRD DEPARTMENT.

CLASS I.

Articles.	Exhibitors.	Residence.	Premiums.
Best exhibition of carpets and rugs	W. Sharp & Co	Sacramento	Diploma.
Best pair knit stockings	Mrs. J. H. Haskell	Sacramento	$3
Pair knit stockings	Mrs. S. M. Hoover	Elk Grove	$3
Best pair knit drawers	Mrs. H. Kuhl	Sacramento	$5
Best knit shirt	Mrs. H. Kuhl	Sacramento	$5
Best foot mat	Mrs. Dwight Pierce	Sacramento	$3
Best display of gent's shirts	Mrs. Emeline Morris	San Francisco.	Silver medal.
Best knit bedspread	Mrs. H. W. Higgins	Sacramento	$5
Knit bedspread	Mrs. John Minford	Sacramento	Special.
Hand-made shirt	Mrs. J. C. Gage	Stockton	Special—sil. medal
Best exhibit of shoulder braces and corsets	Michael Kraker	Sacramento	Silver medal.
Best neckties and bows	S. Wilzinski	Sacramento	Silver medal.
Best display of drygoods	Michael Kraker	Sacramento	$20
Best display of fancy articles	Michael Kraker	Sacramento	$20
Best hat and bonnet wire frames	Mrs. W. C. Barrett	Sacramento	Special—sil. medal
Best display of cordage	Tubbs & Co., manufacturers	Sacramento	Silver medal.
Best ten yards cassimere	Capital Woolen Mills.	Sacramento	$5
Best ten yards flannel	Capital Woolen Mills.	Sacramento	$5
Best pair woolen blankets	Capital Woolen Mills.	Sacramento	$5
Best display of woolen goods	Capital Woolen Mills.	Sacramento	$50
Best hearth rug	Mrs. J. Hill	Sacramento	$5
Best ten yards rag carpet	A. Mackey	San Francisco.	$10
Best exibition of burlaps, and materials of which it is made	Jute Manufacturing Co	Brooklyn	Silver medal.
Exhibition of New Zealand flax—fibre, cloth, and sample of seed	W. R. Strong	Sacramento	Hon. mention.

CLASS II.

Articles.	Exhibitors.	Residence.	Premiums.
Best set of carriage harness	J. E. Parker	Sacramento	$10
Best set of farm harness	J. T. Stoll	Sacramento	$10
Best display of leather	Jacob Eberhart	Santa Clara	$10 and sil. medal.
Best saddle and bridle	J. T. Stoll	Sacramento	$10
Best hames	J. T. Stoll	Sacramento	$3
Best saddletrees	M. T. Barr	Sacramento	$5
Best pair dress boots	P. Mengle	Stockton	$5
Best pair heavy boots	P. Mengle	Stockton	$5
Two pairs gent's dress boots	P. Mengle	Stockton	Special—diploma.
Best pair Congress boots	P. Mengle	Stockton	$5
Best pair ladies' gaiters	Mrs. L. Steudeman	Sacramento	$3

CLASS II—Continued.

Articles.	Exhibitors.	Residence.	Premiums.
Best pair ladies' slippers	Mrs. L. Steudeman	Sacramento	$3
Best pair ladies' bootees	Mrs. L. Steudeman	Sacramento	$3
Best display of men's boots, shoes, and gaiters	P. Mengle	Stockton	Silver medal.
Best display of ladies' and girls' boots, shoes, and gaiters	Mrs. L. Steudeman	Sacramento	Silver medal.
Best display of rubber hose and belting	Huntington, Hopkins & Co	Sacramento	Silver medal.
Best display of paper hangings and borders	C. H. Krebs	Sacramento	$5
Best display of bound account books	H. S. Crocker & Co	Sacramento	$5 and sil. medal.

CLASS III.

Articles.	Exhibitors.	Residence.	Premiums.
Wax Work and Preserved Natural Flowers.			
Best preserved natural flowers.	Madam Anna Gettz Lucas	San Francisco.	Silver medal.
Best statuary	Madam Anna Gettz Lucas	San Francisco.	$10
Best wax flowers	Madam Anna Gettz Lucas	San Francisco.	$10
Best wax fruit	Madam Anna Gettz Lucas	San Francisco.	$5
Confectionery, oysters, etc., in wax; wax cross, Autumn leaves, exotic leaves, largest variety of wax fruits	Madam Anna Gettz Lucas	San Francisco.	Special—sil. med.
Basket of wax flowers and vases, Greek slave, two wax crosses	Miss Nellie Brooks	Sacramento	Special—Butter knife worth $5.
Easter cross and flowers, lyre in wax, sheet wax	Miss Ida Ross	Oakland	Silver medal.
Collection of wax and preserved flowers	Mrs. A. O. Cook	San Francisco.	Silver medal.
Decalcomania on satin	Mrs. J. E. Cotter	San Francisco.	Napkin ring.
Hair, Shell, and Crochet Work, Millinery, Tatting, etc.			
Best display of millinery	Mrs. Springer	Sacramento	$20
Best velvet bonnet	Mrs. Springer	Sacramento	Diploma.
Best crochet shawl	Mrs. H. Kuhl	Sacramento	$5
Largest and best display of crochet work	Mrs. H. Kuhl	Sacramento	Diploma.
Best silk bonnet	Mrs. W. C. Barrett	Sacramento	Diploma.
Best tatting collars	Mrs. John Minford	Sacramento	$3
Tatting	Miss Emma Tubbs	Sacramento	Napkin ring.
Best feather wreath	Miss L. Coons	Elk Grove	Napkin ring.
Feather wreath	Miss C. Deterding	Brighton	Napkin ring.

CLASS III—Continued.

Articles.	Exhibitors.	Residence.	Premiums.
Best hair work	Mrs. D. E. Arnold	Sacramento	$3
Hair wreath	Miss Emma Winning.	Sacramento	Napkin ring.
Best preserved natural flowers.	Mrs. E. Parsons	Sacramento	Napkin ring.
Best paper flowers	Mrs. S. T. Smith	Sacramento	Napkin ring.
Best phantom leaves	Mrs. A. O. Cook	San Francisco.	Napkin ring.
Best leaf work	Mrs. J. E. Cotter	San Francisco.	$5
Best moss work	Mrs. A. O. Cook	San Francisco.	$5
Moss work	Mrs. F. Cox	Sacramento	Napkin ring.
Best shell work (shell castle)	Mrs. E. Bigley	Sacramento	$5
One shell temple	Mrs. E. Parsons	Sacramento	$5
Best assortment leather gloves.	Mrs. M. S. Bowdish	Vallejo	Silver medal.
Best tidies	Miss Jennie Hill	Sacramento	Napkin ring.
Best lace curtain	Mrs. Maria Dewey	Michigan Bar	Napkin ring.
Models for fitting dresses	Madam Brossé	San Francisco.	Silver medal.
Beaumondaire	Mrs. Julia Harvey	San Francisco.	Diploma.
Tree of Saturn	Mrs. S. M. Hoover	Elk Grove	Napkin ring.
Silk, Worsted, and Cotton Embroidery.			
Best silk embroidery	Mrs. N. Hahn	Sacramento	$5
Silk embroidery	Mrs. H. Kuhl	Sacramento	Napkin ring.
Silk embroidery	Mrs. R. T. Brown	Sacramento	Napkin ring.
Best embroidered linen handkerchief	Mrs. B. B. Cutter (for Mrs. S. E. Robinson, a lady 72 years old)	Sacramento	$3
Best cotton embroidery	Mrs. B. B. Cutter (for Mrs. S. E. Robinson, a lady 72 years old)	Sacramento	Napkin ring.
Embroidered linen handkerchief	Mrs. L. Bruckerman	Howland Flat.	$3
Best ottoman cover	Mrs. C. L. Cross	Woodland	$5
Best table cover, raised worsted work	Mrs. Joseph Perrin	Grass Valley	$5
Best embroidered chair	Mrs. B. B. Cutter (for Mrs. S. E. Robinson)	Sacramento	$5
Embroidered chair	Mrs. Mary Morton	Sacramento	Napkin ring.
Best embroidered sofa cushion	Mrs. Mary Morton	Sacramento	$5
Embroidered sofa cushion	Mrs. B. B. Cutter (for Mrs. S. E. Robinson)	Sacramento	Butter knife.
Best embroidered children's clothes	Mrs. M. Hahn	Sacramento	$5
Best sofa pillow, embroidered in beads	Mrs. L. Mebius	Sacramento	$5
Sofa pillow	Mrs. B. B. Cutter (for Mrs. S. E. Robinson)	Sacramento	Napkin ring.
Best variety of linen embroidery	Mrs. L. Mebius	Sacramento	$10
Embroidered pillow cases	Mrs. B. B. Cutter (for Mrs. S. E. Robinson)	Sacramento	Hon. mention.
Fire screen	Mrs. B. B. Cutter (for Mrs. S. E. Robinson)	Sacramento	Hon. mention.
Best tapestry work	Miss L. Myers	Sacramento	Napkin ring.
Tapestry work	Mrs. J. H. Winn	Sacramento	Napkin ring.
Needle Work.			
Best machine sewing	Mrs. S. A. Drake	Sacramento	Napkin ring.

CLASS III—Continued.

Articles.	Exhibitors.	Residence.	Premiums.
Best display of ladies and children's clothing, California made	Michael Kraker	Sacramento	$25
Afghans.			
Best large afghan	Michael Kraker	Sacramento	Napkin ring.
Large afghan	Mrs. M. F. Gardner	Sacramento	Napkin ring.
Best child's afghan	Mrs. H. Kuhl	Sacramento	$5
Best burial robes	Mrs. R. K. Wick	Sacramento	Hon. mention.
Quilts.			
Best white quilt	Mrs. E. J. King	Sutter Creek	$5
Best log cabin quilt	Mrs. A. H. Wilgus	Buckeye, Yolo County	Butter knife.
Best silk quilt	Mrs. A. Weston	Sacramento	$5
Best patch-work quilt	Mrs. A. Weston	Sacramento	$5
Patch-work quilt	Mrs. E. J. King	Sutter Creek	Napkin ring.
Two log cabin quilts	Mrs. M. Carrington	Sacramento	Napkin ring.
Best home-made quilt	Mrs. W. M. Haynie	Sacramento	Napkin ring.
Patch-work quilt	Mrs. P. H. Aiken	Michigan Bar	Napkin ring.
Best woven quilt	Mrs. S. M. Hoover	Elk Grove	$5
Miscellaneous.			
Best clothing — men's and boys'	S. Wilzinski	Sacramento	Silver medal.
Best silk hat	J. C. Meussdorffer	Sacramento	$5
Best soft hat	J. C. Meussdorffer	Sacramento	$5
Finest display and best furs	D. H. Quinn	Sacramento	$25
Best display of men's hats and caps	J. C. Meussdorffer	Sacramento	Silver medal.
Best display of men's clothing	S. Wilzinski	Sacramento	$10
Best display of boys' clothing	S. Wilzinski	Sacramento	$5

FOURTH DEPARTMENT.

MECHANICAL PRODUCTS.

CLASS I—WORKED METALS.

Articles.	Exhibitors.	Residence.	Premiums.
Display of wire goods	J. Campbell	Sacramento	Hon. mention.
Display of bronze locks and window trimmings of the Russel & Irwin Manufacturing Co.—Huntington, Hopkins & Co., agents	Huntington, Hopkins & Co	Sacramento	Diploma.
Display of axes	Huntington, Hopkins & Co	Sacramento	$5
Very meritorious and large display of general hardware	Huntington, Hopkins & Co	Sacramento	Diploma.
Display of iron and steel	Huntington, Hopkins & Co	Sacramento	$5
Display of mechanics' tools	Huntington, Hopkins & Co	Sacramento	$10
Display of pruning knives	Huntington, Hopkins & Co	Sacramento	$5
Display of circular saws	Huntington, Hopkins & Co	Sacramento	$5
Display of mill saws	Huntington, Hopkins & Co	Sacramento	$5
Display of hand saws	Huntington, Hopkins & Co	Sacramento	$5
Display of IXL anti-friction metal	Huntington, Hopkins & Co	Sacramento	Hon. mention.
Display of Selby shot	Huntington, Hopkins & Co	Sacramento	Hon. mention.
Display of coal stoves	Locke & Montague	Sacramento	$5
Display of tinware	Locke & Montague	Sacramento	$5
Display of laundry stoves	Locke & Montague	Sacramento	$5
Display of farmers' cauldrons (steamer)	Locke & Montague	Sacramento	$5
Meritorious display of ranges, broilers, and steam table	Locke & Montague	Sacramento	Diploma.
California cooking range	Locke & Montague	Sacramento	$10
Display of locks for railroad cars, etc., of California manufacture	A. M. Adams	Sacramento	$5 and framed dip.
Display of silver-plated ware	Dr. Justin Gates, agent	Sacramento	Hon. mention.
Display of pocket cutlery, California manufacture	John J. Cass	Sacramento	$5
Display of table cutlery, California manufacture	John J. Cass	Sacramento	$5 and diploma.
Patent pruning shears	F. B. Stevens	Sacramento	$5
Duryea & Co.'s imported angular and ratchet drilling machine (Huntington, Hopkins & Co., agents)	Huntington, Hopkins & Co	Sacramento	Diploma.

CLASS I—Continued.

Articles.	Exhibitors.	Residence.	Premiums.
Weston & Co.'s ratchet drills and differential pulley blocks (Huntington, Hopkins & Co. agents)	Huntington, Hopkins & Co.	Sacramento	Diploma.
Display of brass work	Huntington, Hopkins & Co.	Sacramento	$20

CLASS II—CASTINGS, ETC.

Articles.	Exhibitors.	Residence.	Premiums.
Specimen of marbleized stone, manufactured by the Union Stone Company, of Boston, Mass., under M. Sorel's patent	Geo. G. W. Morgan	Sacramento.	$5

CLASS III—MUSICAL INSTRUMENTS, CABINET WARE, ETC. (CALIFORNIA MANUFACTURE).

Articles.	Exhibitors.	Residence.	Premiums.
Combined rocking sofa and bed; chair and lounge	Mark Anthony.	San Bruno	Special—diploma.
Chair, rocker, and lounge	Mark Anthony.	San Bruno	Sp'l—framed dip.
Peard's patent folding school desk; Peard's patent folding study desk	A. Roman & Co.	San Francisco.	Diploma.
Double "Gem" school desk	A. Roman & Co.	San Francisco.	Diploma.
Patent spring bed bottom	R. S. Thompson	Napa City	Hon. mention.
Carondelet table	J. J. H. Meyer	San Francisco.	Diploma.
Round bur table	E. Ford	Gold Run	$5
California laurel and walnut trimmed bedstead, bureau, and washstand	John Breuner	Sacramento	$10 and fra'd dip.
Best display of furniture—rosewood sofa, easy chair, and parlor chairs	John Breuner	Sacramento	$20
Walnut desk	John Breuner	Sacramento	$5
Walnut desk, glass door	John Breuner	Sacramento	$10
Walnut cylinder bookcase	John Breuner	Sacramento	$5
Lounge	John Breuner	Sacramento	$5
Walnut center table	John Breuner	Sacramento	$5
Leather office chair	John Breuner	Sacramento	$5
Walnut extension table	John Breuner	Sacramento	$5

CLASS III—Continued.

Articles.	Exhibitors.	Residence.	Premiums.
Two gilt embroidered chairs, Turkish chair, set in green, set in blue stripe, gilt and marble-top table, chess table, lady's steamer chair, invalid lounge and mattress, pillow lounge	John Breuner	Sacramento	Diploma.
Mosaic club table	James W. Bird	San Diego	Sp'l—framed dip.
Wood carved frame	James W. Bird	San Diego	Hon. mention.
Best display of spring beds	S. Look	San Francisco.	Hon. mention.
Two Crandall's spring beds	Cooley & Green	Sacramento	Hon. mention.
Four spring beds	A. T. Sherwood	Sacramento	Diploma.
Medallion carved picture frame; square picture frame; five inlaid California wood toilet cases	E. Soule	San Quentin	Diploma.
Musical Instruments.			
Best square grand piano	Wm. G. Badger	San Francisco.	$20
Best parlor piano	John F. Cooper	Sacramento	$10
Colibri piano	John F. Cooper	Sacramento	Diploma.
Portable pipe organ	John F. Cooper	Sacramento	Diploma.
Cabinet reed organs	Wm. G. Badger	San Francisco.	Diploma.
One guitar (California manufacture)	R. C. Marsh	Sacramento	Diploma.
Original compositions and California publications of sheet music	A. A. Rosenberg	San Francisco.	Hon. mention.

CLASS IV—WOODEN WARE (CALIFORNIA MANUFACTURE).

Articles.	Exhibitors.	Residence.	Premiums.
Best display of cedar ware	Nichols, Falvey & Co.	Sacramento	$5 And framed dip. for all, in one.
Best display of oaken ware	Nichols, Falvey & Co.	Sacramento	$5
Best display of pine ware	Nichols, Falvey & Co.	Sacramento	$5
Best display of wooden ware	Nichols, Falvey & Co.	Sacramento	$25
Best display of willow ware	Nichols, Falvey & Co.	Sacramento	$10
Best display of brooms	Nichols, Falvey & Co.	Sacramento	
Chairs	W. D. Freeman	Tomales	Diploma.
Kimball & Hebard's patent window extension screen and mosquito bar	R. S. Thompson	Napa City	Hon. mention.
Rustic window shades	C. H. Krebs	Sacramento	Hon. mention.
Gilt frames	C. H. Krebs	Sacramento	Hon. mention.

CLASSES V AND VI—CHEMICALS, ETC.

Articles.	Exhibitors.	Residence.	Premiums.
Knowlton's blacking	W. C. Palmer	San Francisco.	$5
Knowlton's writing fluid and mucilage	W. C. Palmer	San Francisco.	$2 and framed dip.
Barrel of glue	H. C. Kirk & Co.	Sacramento	Hon. mention.
Averill's chemical paint. [Especially recommend its use to the community for its cheapness, beauty, and durability.]	Jesse Healy, Agent California Chemical Paint Co.	San Francisco.	$5 and diploma.
Three cases copal varnish, from San Francisco Pioneer Varnish Works	C. H. Krebs	Sacramento	$5
Five gallons boiled linseed oil, from Pacific Lead Works	C. H. Krebs	Sacramento	$10
White lead, from Alta Lead Works	C. H. Krebs	Sacramento	$5
Five gallons castor oil, from Briggs Bros., Marysville	C. H. Krebs	Sacramento	$10
Samples California paint	C. H. Krebs	Sacramento	Hon. mention.
Glue, from Pioneer Glue Factory	C. H. Krebs	Sacramento	$5
Turpentine, from Corder's Pioneer Distillery, Marysville	C. H. Krebs	Sacramento	Hon. mention.

CLASS VII—GLASS, CROCKERY, STONEWARE, BRICKS, AND TILES (CALIFORNIA MANUFACTURE).

Articles.	Exhibitors.	Residence.	Premiums.
Sewer pipe	N. Clark & Co.	Sacramento	$5
Fire brick	N. Clark & Co.	Sacramento	$3
Best display of glassware	Carlton Newman & Co.	San Francisco.	Diploma.
Samples of stone, manufactured by the Union Stone Company, of Boston, Mass., under Mons. Sorel's patent. [Your committee would especially commend this invention to the favorable consideration of the public, for its merits, it being in our opinion superior to all other similar inventions.]	Geo. G. W. Morgan	Sacramento	Diploma.
Sack of table salt	John Quigley	Alvarado, Alameda Co.	$3
For general exhibition of salt	John Quigley	Alvarado, Alameda Co.	Diploma.
Sample of California marble, from Copperopolis	Mattison & Williamson	Stockton	Hon. mention.

MINERALS, BIRDS, AND FISHES.

Articles.	Exhibitors.	Residence.	Premiums.
Collection of California birds	A. Peri	Marysville	Silver medal.
Samples of photograph rock and cactus root, found by exhibitor	Mrs. Emily Aubrey	Sacramento	Napkin ring.
Four globes gold fishes	D. De Bernardi & Selna	Sacramento	Silver medal.
Collection of photograph rock	Francisco Guidice	Newtown, El Dorado Co.	Hon. mention.

MISCELLANEOUS ARTICLES.

Articles.	Exhibitors.	Residence.	Premiums.
Best patent letter clip; best universal glazing tool	J. L. McKee	San Francisco.	Diploma.
Soda apparatus, etc.	Justin Gates & Bro.	Sacramento	Hon. mention.
Patent money drawer	Fairbanks & Hutchison	San Francisco.	Hon. mention.
India rubber stamps; novelty printer; display of stencil goods	A. D. Oakley	Sacramento	Diploma.
Mahogany cane	John T. Lollner	Napa City	Hon. mention.
Cane made from wood taken from the Kearsarge	John T. Lollner	Napa City	Hon. mention.
Chromo lithograph parlor amusement	George Thistleton	San Francisco.	Hon. mention.
Two cases confectionery and confectionery ornaments	John A. Nehrbass	Sacramento	Diploma.
Landscape, in confectionery	John A. Nehrbass	Sacramento	Special rec'd.
Apiary of Italian bees, four hundred and seventy-three hives	J. S. Harbison	Sacramento	Hon. mention.
One case cigars of California manufacture, from Havana tobacco. [Committee deem their enterprise worthy of encouragement]	E. Eisenberg & Bros.	San Francisco.	Silver medal.
General assortment of undertakers' goods, coffin plates, etc.	Wick & Clark	Sacramento	Hon. mention.
Walnut casket, and imitation rosewood child's casket	Wick & Clark	Sacramento	Hon. mention.
Display of needles for sewing machines	Suplee Needle Manufacturing Company.	San Francisco.	Hon. mention.
Roller skates	J. A. Todd	Sacramento	Diploma.
Self-acting shade roller	Hartshorn & McPhun.	San Francisco.	Hon. mention.
One fleece wool (thirty-eight pounds), from sheep one year old	C. C. Baker	Modesto	Special.
Best display of ground spices, etc.	Bowen Bros.	San Francisco.	Diploma.
Best yeast powder	Bowen Bros.	San Francisco.	Diploma.
Axle grease	Charles Green	San Francisco.	Diploma.

MISCELLANEOUS ARTICLES—Continued.

Articles.	Exhibitors.	Residence.	Premiums.
General assortment of Knowlton's writing inks and mucilage	William C. Palmer	San Francisco.	Diploma.
Window sash balance	E. B. Tenney	Ripon, Kansas.	Diploma.
Renovator and dyes	William Blake	San Francisco.	Diploma.
Clark's patent buggy sun and storm shade and protector	Waterhouse & Lester.	Sacramento	Hon. mention.
Compound remedy for recent and chronic diseases	Dr. B. H. Lyons	Honolulu, S. I.	Hon. mention.
Six chiccory roots. [The committee recommend this article to California farmers as an important article for cultivation]	W. C. Gerber, ag't for Screiber & Howell.	Sacramento	Hon. mention.
Display of wild cherry tonic	Dr. W. Henley	San Francisco.	Diploma.
Spark arrester	Treadwell & Co	San Francisco.	Diploma.
Portable forges and blowers	W. H. Keep	Stockton	Diploma.
Wire mattress	J. Campbell	Sacramento	Hon. mention.
Rock River building paper. [Committee recommend it to the public for use]	D. C. Brown, for Peck & Brown	Sacramento	Diploma.
Crystalline hair toilet articles	E. A. Wilcox	Sacramento	Hon. mention.
Three stalks of tobacco. [Meritorious exhibition]	J. R. Johnston	Sacramento	
Locomotive headlight	Huntington, Hopkins & Co	Sacramento	Hon. mention.
Disinfectant and elastic varnish, and samples of wood preserved	San Francisco Wood Preserving Co	San Francisco.	Diploma.
Car break and switch alarm	J. C. Gibson	Sacramento	Diploma.
A diagonal marble saw	J. C. Gibson	Sacramento	Hon. mention.
Yeast powders	Thomas Donnolly	San Francisco.	Hon. mention.
Patent punch, for punching iron (California invention)	D. A. Faulkner	Centerville	Diploma.
Bag holder	Warren Wasson	Carson, Nev	Hon. mention.
Stovepipe damper	Warren Wasson	Carson, Nev	Hon. mention.
Patent invalid bedstead. [The committee recommend its use to resident physicians of hospitals and the public at large. Its construction is such that a patient can be moved or placed in any position without being removed from the bed, and the bedclothes changed without inconvenience to the invalid; having also a valuable attachment, consisting of an elastic bed-band]	Benjamin Pollard	Dutch Flat	Diploma.
American bottle filler (California invention). [A very meritorious invention]	J. Armstrong	San Francisco.	Diploma.
Wood boring and iron drilling machine	Charles H. Gordon	Mokelumne, Sac. Co	Hon. mention.
Paints for wax flowers, her own invention and manufacture	Mrs. J. E. Millard	San Francisco.	Diploma.

ARTICLES EXHIBITED BY CHILDREN UNDER SIXTEEN YEARS OF AGE.

The Committee recommend the Board to consider the ages of the children below mentioned and award them special premiums for their work.

Articles.	Exhibitors.	Residence.	Premiums.
	Pupils of Mrs. Curtis of San Jose.		
Fine pencil drawing	Emily L. Peelor, (10 years)	San José	Napkin ring.
Fine pencil drawing	Annetta Peelor, (12 years)	San José	Napkin ring.
Fine pencil drawing	E. G. Peelor, (16 years)	San José	Napkin ring.
	Pupils of Mrs. Bingay of Sacramento.		
Fine pencil drawing	Nellie Wilsey, (11 years)	Sacramento	Silver, value $3
Fine pencil drawing	Willie Osborn, (14 years)	Sacramento	Silver, value $3
Fine pencil drawing	Hattie Lewis, (10 years)	Sacramento	Silver, value $3
Fine pencil drawing	F. Massol, (11 years)	Sacramento	Silver, value $3
Fine pencil drawing	Miss McClatchy, (11 years)	Sacramento	Silver, value $3
Fine pencil drawing	Kittie Wilsey, (13 years)	Sacramento	Silver, value $3
Fine pencil drawing	Kittie Waters, (13 years)	Sacramento	Silver, value $3
Fine pencil drawing	Ella Bailey, (16 years)	Sacramento	Silver, value $3
Fine pencil drawing	Charley Warren, (12 years)	Sacramento	Silver, value $3
Fine pencil drawing	Kittie Allmond, (11 years)	Sacramento	Silver, value $3
Fine pencil drawing	Mary Allmond, (15 years)	Sacramento	Silver, value $3
Fine pencil drawing	J. H. Hughes, (14 years)	Sacramento	Silver, value $3
Oil painting, "Still Life," very fine	Miss Katie Crocker	Sacramento	Silver medal.
Embroidery, Crochet, and Wax Work.	*Pupils of Mrs. Curtis of San Jose.*		
Worsted work	Miss A. Peelor, (9 years)	San José	Napkin ring.
Embroidery	Miss E. A. Peelor, (10 years)	San José	Napkin ring.
	Pupils of Mrs. Bingay of Sacramento.		
Feather and cone work	Lizzie L. Coons, (13 years)	Sacramento	Napkin ring.
Crochet work	Katie Vandenberg, (12 years)	Sacramento	Napkin ring.
Worsted work	Mary Barrett, (10 years)	Sacramento	Napkin ring.

ARTICLES EXHIBITED BY CHILDREN UNDER SIXTEEN YEARS OF AGE—*Continued.*

Articles.	Exhibitors.	Residence.	Premiums.
Button monument	Miss E. Hartwell, (9 years)	Sacramento	Napkin ring.
Silk Flowers	Kittie Studarus, (12 years)	Sacramento	Napkin ring.
Wax work, (very fine)	Belle McGuire, (12 years)	Sacramento	Napkin ring.
Patch work quilt	Nancy C. E. Jackson, (13 years)	Sacramento	Napkin ring.
Tapestry work	Lizzie Gillen, (14 years)	Sacramento	Napkin ring.
Tapestry work	Miss E. Kreuzberger, (15 years)	Sacramento	Diploma.
Tapestry work	Miss C. Deterding, (14 years)	Sacramento	Napkin ring.
Variety of jellies	Miss B. Johnston, (15 years)	Sacramento	Napkin ring.
Specimens of plain and ornamental penmanship, (very meritorious)	Albert Duane Bowden, (13 years)	Sacramento	Napkin ring.

FIFTH DEPARTMENT.

CLASSES I AND II—AGRICULTURAL PRODUCTS.

Articles.	Exhibitors.	Residence.	Premiums.
Best sample of hops	Bachmann & Neubourg	Sacramento	$5
Best sample California wheat	Frank Hamilton	San José	$10
Best sample Chile wheat	Gen. John Bidwell	Chico	$10
Best sack flour	J. Stoddard & Bro	Wheatland	Silver medal.
Best bushel yellow corn	J. Fisher	Brighton	$5
Best bushel white corn	J. H. Wolfe	Brighton	$5
Best sample club wheat	E. I. Sparks	Lincoln	$10
Exhibits of variety of wheat (Pride of Butte), which the committee recommends to the attention of the farmers of the State	Wm. Van Woert	Chico	

CLASS III—VEGETABLES, ROOTS, ETC.

Articles.	Exhibitors.	Residence.	Premiums.
Best half bushel red potatoes	Robert Williamson	Sacramento	$5
Best half bushel white potatoes.	P. Hart	Sacramento	$5
Best half bushel any other variety	Peter Burns	Burns' Slough.	$5
Greatest variety Irish potatoes, half peck of each	Robert Williamson	Sacramento	$10
Best half bushel sweet potatoes.	Robert Williamson	Sacramento	$5
Best twelve parsnips	Robert Williamson	Sacramento	$3
Best twelve carrots	Robert Williamson	Sacramento	$3
Best six long blood beets	Robert Williamson	Sacramento	$3
Best six turnip beets	Robert Williamson	Sacramento	$3
Best six sugar beets	John Smith	Sacramento	$3
Best peck tomatoes	John Smith	Sacramento	$3
Best six drumhead cabbages	Robert Williamson	Sacramento	$3
Best six red Dutch cabbages	Robert Williamson	Sacramento	$3
Best six other varieties	William Bihler	San Francisco.	$3
Best three heads cauliflower	J. R. Johnston	Sacramento	$3
Best three heads broccoli	J. R. Johnston	Sacramento	$3
Best six heads lettuce	Robert Williamson	Sacramento	$2
Best half peck red onions	C. T. Wheeler	Sacramento	$3
Best half peck yellow onions	P. Hart	Sacramento	$3
Best half peck white onions	Robert Williamson	Sacramento	$3
Best half peck peppers for pickling	P. Hart	Sacramento	$3
Best twelve roots salsify	Robert Williamson	Sacramento	$3
Best six stalks celery	Robert Williamson	Sacramento	$3
Best six marrow squashes	John H. Wolfe	Sacramento	$3
Best six Hubbard squashes	Robert Williamson	Sacramento	$3
Best six crookneck squashes	Robert Williamson	Sacramento	$3
Largest pumpkin	Samuel Hury [not a member]	San Joaquin River	
Best dozen sweet corn, green	John H. Wolfe	Sacramento	$3
Best three mountain sweet watermelons	John H. Wolfe	Sacramento	$2
Best three watermelons other varieties	John Studarus	Brighton	$3
Best three green flesh muskmelons	John H. Wolfe	Sacramento	$3
Best three yellow flesh muskmelons	John H. Wolfe	Sacramento	$3
Best six cucumbers	Robert Williamson	Sacramento	$2
Best half peck Lima beans, in pod	C. W. Adams	Sacramento	$3
Best half peck white beans, dried	Robert Williamson	Sacramento	$2
Best half peck kidney bush-beans, in pod	Robert Williamson	Sacramento	$3
Best half peck pole beans, other than Lima	D. De Bernardi	Sacramento	$2
Best half peck field peas, dried	E. F. Aiken	Sacramento	$2
Best half peck garden peas, dried	Robert Williamson	Sacramento	$3
Best half peck castor oil beans.	W. W. Montgomery	Davisville	$5
Greatest variety peas, dried	E. F. Aiken	Sacramento	$5
Best half peck gherkin cucumbers	J. R. Johnston	Sacramento	$3
Best three purple egg plants	D. De Bernardi	Sacramento	$5
Best table or collection vegetables	D. De Bernardi	Sacramento	$30
Second best table or collection vegetables	J. R. Johnston	Sacramento	$20

CLASS III—VEGETABLES, ROOTS, ETC.—Continued.

Articles.	Exhibitors.	Residence.	Premiums.
Six sugar beets, grown on red sand without irrigation; weight, 106 pounds	Peter Burns	Burns' Slough.	Diploma.
Two large squashes	N. W. Brooks	Sacramento	Hon. mention.
Six large sugar beets	William Bihler	San Francisco.	Diploma.
One large watermelon, 58½ pounds	J. R. Nickeson	Lincoln.	Hon. mention.
Three catawba cantaloupes	J. R. Nickeson	Lincoln.	Hon. mention.
Three stalks tobacco	J. R. Johnston	Sacramento	Hon. mention.
Six ears popcorn	Samuel Storms	Sacramento	Hon. mention.
Five Mexican custard squashes.	J. H. Wolfe	Sacramento	$3
Six Yankee pie pumpkins	J. H. Wolfe	Sacramento	$3
Four varieties new kind choice potatoes, in jars, grown by C. H. Dwinelle, of Oakland	Dewey & Co	San Francisco.	Hon. mention.
Box new seedling potatoes	A. D. Pryal	Brooklyn	Hon. mention.

CLASS IV.

Articles.	Exhibitors.	Residence.	Premiums.
Best and largest collection flowering plants in bloom	Thomas O'Brien	Sacramento	$25
Best collection ornamental foliage plants	A. Ebel	Sacramento	$25
Best collection new and rare plants	A. Ebel	Sacramento	$15
Best collection fuschias in bloom	Thomas O'Brien	Sacramento	$15
Best collection cut flowers	Thomas O'Brien	Sacramento	$10
Best display bouquets	E. Parsons	Sacramento	$10
Best collection of Australian plants	A. Ebel	Sacramento	$10
Best collection plants suitable for greenhouse, conservatory, and window culture	A. Ebel	Sacramento	$15

CLASSES V, VI, AND VII.

Articles.	Exhibitors.	Residence.	Premiums.
Best and largest variety jellies.	Mrs. S. M. Hoover	Elk Grove	$20
Best quality, but small quantity, jellies	Mrs. H. Cronkite	Sacramento	Special recom'd.
Best and largest variety canned fruits	Mrs. E. F. Aiken	Sacramento	$20
Best and largest variety pickles.	Mrs. S. M. Hoover	Elk Grove	$15
Best brandied peaches	Mrs. S. M. Hoover	Elk Grove	$5
Best and largest lot cheese	S. Cole	Gilroy	Diploma and $20
Best twenty pounds roll butter.	Mrs. E. F. Aiken	Sacramento	$10
Best brown bread	Mrs. E. F. Aiken	Sacramento	$5
Best soda biscuit	Mrs. E. F. Aiken	Sacramento	$2
Best cheese, one year old and over	E. Cole	Gilroy	$15
Best cheese, under one year. [Prefers gold medal to money]	E. Cole	Gilroy	$10
Best domestic rye bread	Mrs. J. H. Wolfe	Sacramento	$5
Best domestic wheat bread	Mrs. J. H. Wolfe	Sacramento	$5
Best and largest lot of honey	Clark & Harbison	San Diego	$5
Fine display jellies	Mrs. N. Clark	Sacramento	Special recom'd.
Fine and large display jellies	Mrs. J. P. Odbert	Sacramento	Special recom'd.
Best display sugar	Sac'm'to Valley Beet Sugar Company	Sacramento	$20
Best domestic corn bread	Mrs. J. H. Wolfe	Sacramento	$5
Best variety preserves in glass	Mrs. S. M. Hoover	Sacramento	$10
Best display vegetables	Robert Williamson	Sacramento	Gold medal.

SIXTH DEPARTMENT.

CLASS I—FRUITS.

Articles.	Exhibitors.	Residence.	Premiums.
*Green Fruits.**			
Best display of apples	H. T. Hutchinson	Marysville	$30
Best twelve varieties of apples	A. S. Greenlaw	Sacramento	$15
Best six varieties of apples	Ira S. Bamber	Placerville	$10
Best three varieties of apples	Robert Williamson	Sacramento	$5
Best display of pears	H. T. Hutchinson	Marysville	$30
Best twelve varieties of pears	Ira S. Bamber	Placerville	$10
Best six varieties of pears	James Holland	Sacramento	$15
Best three varieties of pears	E. Dane	Sonora	$5
Best display of peaches	Ira S. Bamber	Placerville	$15
Best six varieties of peaches	E. Dane	Sonora	$10
Best single variety of peaches	E. F. Aiken	Sacramento	$5
Best display of plums	Ira S. Bamber	Placerville	$15
Best five varieties of plums	Ira S. Bamber	Placerville	$10
Best single variety of plums	E. Dane	Sonora	$5

CLASS I—FRUITS—Continued.

Articles.	Exhibitors.	Residence.	Premiums.
Best figs	H. T. Hutchinson	Marysville	$5
Best pomegranate	August Abel	Sacramento	Hon'able mention.
Thirty-eight varieties of apples.	James Crozier	Stockton	Silver medal.
Best display of seedling fruits	E. Dane	Sonora	$10
Dried Fruits.			
Best twenty-five pounds of dried apples	Ira S. Bamber	Placerville	$20
Best twenty-five pounds of dried pears	E. F. Aiken	Sacramento	$20
Best twenty-five pounds of dried peaches	E. Dane	Sonora	$20
Best twenty-five pounds of dried plums	E. F. Aiken	Sacramento	$20
Best twenty-five pounds of dried nectarines	E. Dane	Sonora	$20
Best twenty pounds of dried figs	Ira S. Bamber	Placerville	$10
Twenty varieties desiccated fruits	L. A. Gould	Santa Clara	Silver medal.
Best exhibition of dried berries.	E. F. Aiken	Sacramento	$10
Fifty pounds of apples	J. R. Nickeson	Lincoln	Hon'able mention.
Nuts.			
Sample of Japanese chestnuts	B. N. Bugbey	Folsom	Hon'able mention.
Sample of almonds	Robert Williamson	Sacramento	$5
Best model fruit drying house	Robert Williamson	Sacramento	$20
Best exhibition in department	E. F. Aiken	Sacramento	Gold medal.

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* Committee failed to report for best display.

SEVENTH DEPARTMENT.

FINE ARTS.

Articles.	Exhibitors.	Residence.	Premiums.
Paintings.			
Best water-colored landscape	G. H. Goddart	San Francisco.	$10
Picture of Charbenaere grapes in water colors, (very fine)	Miss H. Millard	San José	Silver medal.
Water-colored portraits	O. Kaesschmidt	San Francisco.	Hon. mention.
Water-colored painting, (superior workmanship)	Chas. Prosch	San Francisco.	Diploma.
Best exhibition of portrait painting in oil	D. H. Woods	Sacramento	$40
Best specimen of portrait painting in oil	A. Hart	San Francisco.	$20
Best exhibition of landscape painting in oil	Wm. Keith	San Francisco.	$40
Best specimen of landscape painting in oil	Wm. Keith	San Francisco.	$20
Best exhibition of animal paintings in oil	D. H. Woods	Sacramento	$40
Hand-made chromos	Mrs. E. J. King	Sutter Creek	Silver medal.
Water-color paintings	Mrs. H. H. Curtis	San José	Silver medal.
Oil paintings	Miss A. J. Perry	Sacramento	Silver medal.
Best specimen of fruit painting	Wm. Keith	San Francisco.	$10
Best exhibition of paintings	Wm. Keith	San Francisco.	$50
Best collection of tropical landscape paintings in oil	Norton Bush	San Francisco.	Hon. mention.
Collection of paintings in oil	A. Hart	San Francisco.	Hon. mention.
Paintings	A. Hart	San Francisco.	Gold medal.
Sculpture.			
Two medallions, three-quarter view, taken from a photograph	De Long, Combes & Comp'ny, (by J. W. Combes)	San José	Diploma.
Best specimen of California marble	De Long, Combes & Comp'ny, (by J. W. Combes	San José	Special recom'd.
Exhibition of sculpture	J. C. Devine & Bro	Sacramento	$20
Best exhibition of statuary and busts in plaster	J. C. Devine & Bro	Sacramento	$20
Display of statuary in marble and bronze	Michael Kraker	Sacramento	Diploma.
Best collection of marble works	J. C. Devine & Bro	Sacramento	$40
Designs.			
Design for canal and narrow gauge railroad combined	Geo. G. W. Morgan	Sacramento	Diploma.
Design for carriage house and stable	Frank P. Lowell	Sacramento	Diploma.

FINE ARTS—Continued.

Articles.	Exhibitors.	Residence.	Premiums.
Photographs.			
Best exhibition of photographs.	Bradley & Rulofson...	San Francisco.	........................$10
Best exhibition of colored photographs	Bradley & Rulofson...	San Francisco.	..............Diploma.
Best exhibition of retouched photographs	I. W. Taber.............	San Francisco.	..............Diploma.
Best exhibition of plain photographs........................	Silas Selleck.............	San Francisco.	..............Diploma.
Best display of crayon photographs (retouched)................	Bradley & Rulofson...	San Francisco.	..............Diploma.
Best display of crayon drawings........................	Mrs. John Rivett......	Sacramento.....	........................$5
Penmanship.			
Pen drawing, (bunch of grapes from the original. Very excellent)........................	F. J. Lewis..............	Sacramento.....	..............Diploma.
Best penmanship....................	E. P. Heald..............	San Francisco.	........................$5
Best pen drawing....................	C. C. Brown..............	Sacramento.....	........................$5

CLAIMS FOR THE GOLD MEDALS FOR 1872.

FIRST DEPARTMENT.

LIVE STOCK.

The medal of this department was awarded to Coleman Younger, of San José, for his exhibition of short-horned Durham stock.

SECOND DEPARTMENT.

STATEMENT OF JAMES CUMMING.

To the Committee on the Award of Gold Medals:

GENTLEMEN: I wish to present for your consideration my adjustable turbine water-wheel as being the most meritorious exhibition in the Second Department, for the following reasons: The mechanical effect inherent in water is the product of its weight into the height of its head, but the effect yielded by a wheel is always less than the above, because many losses occur. In the first place, the water retains a certain amount of *vis viva* after having quitted the wheel; secondly, the resistances of friction of the water passing through the guide-curves and buckets; and lastly, (and greatest loss of all, amounting to from twenty to thirty per cent,) when the sluice-gates are lowered and the water does not fill the sections of the wheel's channels—for as the water entering the wheel finds a much greater sectional area than it can fill, it gets into an irregular, oscillatory motion, which causes it not only to lose all the effect of reaction upon the wheel, but it also loses a part of its *vis viva*, and thus becoming a drag to the wheel. The first and second losses I have reduced to the lowest possible amount by straight polished steel sluice-guides, by directing the water into the wheel in smooth, compressed sluices, with either open or partly closed gates, and at an angle of only fifteen degrees; by preventing all shock of the water by directing it downwards and inwards at an angle of one hundred and fifteen degrees from the plane of the sluices; by discharging the water from the wheel at the small angle of twelve degrees; and by causing the water to describe a parabolic curve in passing through the wheel—all of which are new principles in my wheel. The last and greatest loss is completely overcome by the sections of the wheel closing in the exact proportion of the closing of gates, thus keeping the water smooth and effective until discharged from the wheel. Since the Fair closed I have been experimenting, and find that the wheel gives one per cent more effect when the gates are half closed than when open, owing to the water being discharged from the wheel at an angle only of six degrees.

Some thirty years past large sums of money and labor were expended in experiments in France, Germany, England, and the United States, by such scientific men as Michelotti, Vince, Langsdorf, Bassut, Morosi, Bidone, Cadiat, Whitelow, Comb, Fourneyron, Weisbach, Fontain, Jonval, and many others, to overcome the loss in turbines working in variable waters, but without success; and I believe for the last fifteen years but few experiments have been made (or if so, they have not been published), it being thought by most practical men to be insurmountable. In all turbines in present use, having compound gates, each gate is partly independent of the others, and as the water passes against them with great velocity, keeps them constantly vibrating, causing great wear, and consequently increasing leakage and loss of effect; and also, under high heads, the pressure is so great upon them that they become fixed and unmanageable. In my turbine the gates are firmly secured to a strong ring, forming a circle of gates, and each pressing against its guide, so that they cannot vibrate or wear; and, as the water passes equally at all points of the circle of gates, each neutralizing the pressure on the other, so that the gates open and close under high pressure with the same ease and smoothness as if there was no pressure upon them.

The time is near at hand when turbines that will give the greatest amount of power with the least amount of water, and at all stages of the water, will be an imperative necessity to the development of the mineral resources of California. Along the whole course of the great belt of quartz of California the fuel is becoming scarce and high priced, preventing many good mines from being worked with profit, and very soon the wood will all be consumed. Also many thousands of dollars have been invested in ditches, which are becoming of little value as the surface diggings are worked out, and said ditches must and will be converted into water-power for the working of said quartz mines; and as water-power is from fifty to seventy-five per cent cheaper than other power, many mines will be worked which could never be made available by other power, and which will yield large amounts to the general wealth of our State. And as all the waters of California become greatly reduced in the Summer months, it becomes of great importance to all the interests of the State that the greatest amount of work be done that is possible with the smallest amount of water.

My wheel can and will give twenty-five per cent more effect with a half head of water than any other turbine now in use, and will give employment to twenty-five per cent more men, as well as produce twenty-five per cent more gold for circulation, during the dry season of the year, thus benefiting the laborers, capitalists, and the commerce of our State.

Gentlemen, I leave my application in your hands, with full confidence in your skill, judgment, and impartiality; and should I be the successful one, you will have conferred upon me more than gold.

JAMES CUMMING.

STATEMENT OF GOODWIN & WEST.

To the Examining Committee of the State Agricultural Society:

Gentlemen: We respectfully submit to your consideration the following claims of superiority for the Goodwin pump:

It is generally conceded that the great progress made in modern mechanics is due more to the substitution of rotary for rectilineal movements, and of continuous for alternating ones, than to any other single cause. For over two hundred years a rotary pump has been a desideratum; and while pump makers were fully conscious of the loss of power in overcoming the inertia at each end of the stroke in the reciprocating pump, and its inability to run at a high speed, they found that in attempting to construct a rotary pump they escaped one set of difficulties to encounter another, the greatest of which was friction. In the earlier rotary pumps the friction was all sliding instead of rolling, and, as they had no means of "taking up" the wear, in a short time they leaked so badly that the water passed through their joints almost without obstruction. And thus one rotary pump after another was laid aside. Still, all admitted that in theory they were perfect. Now it is a fact pretty well conceded that if a mechanical device is perfect in theory, that sooner or later it is sure to be wrought out in practice, and proved to be superior to one that is not perfect in theory.

In our pump we claim to secure all of the advantages of the continuous moving rotary pump with the small amount of friction of the reciprocating cylindrical pump; and in addition, that the sliding friction of other pumps is changed to rolling friction in ours. This is the greatest advantage. By the small size of the eccentric (which is possible only with our friction rollers) and the rotary movement of the inner cylinder, the friction is reduced to a minimum, and is rendered rolling instead of sliding. By means of our adjustable gibs and screws all of the joints can be taken up when they wear, and the pump made to fit as accurately as when first put together. The absence of valves renders it much simpler than the ordinary pump, and enables sand or grain to be pumped with the water with as much facility as though it were clear. This is a great advantage when used in ships and tanneries, and more especially for mines, where the water pumped is seldom clear. As our pumps are made entirely of iron, and have but little friction, they are very durable. They have great capacity for their size and weight, and are very portable.

Our method of applying power is cheaper and simpler than any other. For mines it is unequaled, as it operates in an incline or along a horizontal drift with as much facility as in a vertical shaft. In sinking an incline or shaft, where water is encountered, this pump can be lowered as the work progresses with much less difficulty than by any of the old methods, and in a shaft the rope occupies much less space than an ordinary pump rod.

For fire engines and hydraulic mining, on account of its lightness, strength, and great capacity, it is preferable to any other pump. For raising water by windmills it is absolutely the best pump in existence. No matter how fast or slow it runs, any speed between one and one thousand revolutions per minute is equally safe, and its effect is in direct ratio with the speed. At the highest speed there is no jerking and rattling of rods, threatening to break; all moves smoothly, with no sound but the sails of the windmill and the flowing of the water.

There are many minor advantages which we might mention, as cheapness, its capacity for pumping hot liquids, the ease with which it can be transported over trails in mountainous districts, the facility with which any kind of power can be applied to it, etc., but we fear that we have already exhausted your patience, and will close.

Respectfully yours,
GOODWIN & WEST.

STATEMENT OF J. A. LEAMAN.

To Committee of Award of Gold Medal of Second Department:

GENTLEMEN: I hereby make application for the gold medal in the Second Department for my car coupling, on the grounds of its simplicity, durability, and cheapness, the necessary cost of coupling being no more than the ordinary coupling; besides being to the benefit of the traveling public and the community in general, and to the saving of property and the natural peril perceptible to the present mode of coupling cars; besides the time which is saved in the making up of trains, and the delays which are so characteristic in the construction of trains.

Yours respectfully,
J. A. LEAMAN.

STATEMENT OF HENDERSON & CLARK.

To the Honorable Committee on Gold Medals:

GENTLEMEN: As competitors for the gold medal in the Second Department, we beg to submit the following reasons why it should be awarded us:

We claim ours was the most meritorious display of light work, finished and unfinished, and being of a lighter class than any other work on exhibition in this department. Our exhibition consisted of:

A one-horse family carriage; weight, five hundred and sixty pounds.
One top buggy; weight, two hundred and fifty-seven and a half pounds.
One trotting buggy; weight, one hundred and fifty pounds.
One set buggy wheels.

Trusting in your integrity and honesty of purpose, we would respectfully ask your favorable consideration.

Yours, truly,
HENDERSON & CLARK.

STATEMENT OF JOHN A. BALL.

To the Committee on Gold Medals:

GENTLEMEN: My hopes of being awarded the gold medal in the department to which it belongs are based upon the belief that the device, as exhibited, shows that it is such an improvement as will in time supply what is now a great want by a majority of families in our community; hence its importance as an improvement and its real comparative value. Some of the advantages claimed over other modes of raising water are as follows:

The ease (or amount of power) that it requires to raise an amount of water from any depth in a given time, as compared with other modes.

It retains all the good qualities of the "old oaken bucket," with its defects improved.

It avoids all necessity for the operator to tussle with a heavy, dripping bucket over a curb, being in danger of falling in the well while thus engaged.

The action of the buckets and chain passing the whole depth of the well, keeps both the air and water pure and good; the water is cooler and better for the reason that each bucketfull is drawn direct from the bottom of the well.

It is more easily set up in working order in a well, or taken out and removed to another, as there is no heavy lifting required, such as heavy pipes or stocks; nor is there any necessity for going down in the well for the same, or to make any repairs at any time, as all such labor can be done at the surface; it is scarcely possible for any breakdown to cause a bucket or any portion of the machinery to fall in the well.

There is no perceptible difference in regard to ease, whether drawing from a deep or a shallow well, but requires more time to draw from a deep than a shallow one, just in proportion to the depth of each.

It is no more liable to get out of repair in a deep well than in a shallow one; still, if repairs are needed, they are just as easy done in a deep as a shallow well.

It is not so necessary that all its parts are in so nearly perfect order as other machines or pumps require to be to be of any usefulness.

It is extremely simple and effective for the purposes for which it is designed, and durable.

Having thus described the merits of my elevator for raising water by hand-power, I submit to your decision.

Respectfully yours, JOHN A. BALL.

STATEMENT OF A. McCALL.

To the Committee on awarding Gold Medals:

GENTLEMEN: I have on exhibition a tule-cutter plow, for which I desire to receive the gold medal of the Second Department, "for the most meritorious exhibition" in that department. Of course, I realize the claims of others to excellence, but I submit to your consideration whether there is a more important article in that department than a plow that is capable of rooting out the wild tules from millions of acres of our richest soil, and which are now valueless, comparatively, and rendering them capable of producing boundless wealth to our glorious State. Many have tried to solve this grand problem, but I am the privileged one to cry "Eureka."

Very respectfully yours,

A. McCALL.

STATEMENT OF E. GROAT.

To the Committee on awarding the Gold Medal for the most meritorious exhibition of California manufacture and invention in machinery:

GENTLEMEN: In presenting to you my claim for the gold medal for the most meritorious exhibition in the department of which you are to be the judges, I beg leave to set forth the following as some of the merits of my churn:

First—I claim that it is a palpable fact, that from the beginning of butter making, as far as the records show, the process has always been a tedious and laborious operation, from the fact that there has never been invented (until my invention was perfected) any process by which the counteracting element on centrifugal force could be obviated.

Second—I claim that my invention of churning butter, with my swinging reciprocating beaters, entirely overcomes and dispenses with that important difficulty in butter making.

Third—I claim that my swinging reciprocating beaters do not move the cream in a body, as is the case to a greater or less extent in all of the implements of its kind, but that the segregation of the cream is entire, complete, and uniform; and from the simple fact that the action upon the cream is uniform, the result is uniform, and the butter is all brought together.

Fourth—I claim that my simple device for operating my churn, for all practical purposes, is unlimited in its power, being worked by a lever which is adjustable as to the weight and fulcrum, to suit the strength and capacity of the operator, thereby placing it within the scope and power of any member of any household to accomplish the required object with ease and dispatch.

Fifth—I claim simplicity of construction, durability, and cheapness, as also the facility with which they can be taken apart for cleaning.

In presenting the foregoing claims for your consideration, I have simply confined myself to the demonstrated facts bearing upon the case in question. You will please also consider that the butter-making interest is one of the most important of our home productions, and that a good, successful, and effective churn has been a machine long needed among our household implements.

Very respectfully, etc.,

ELIAS GROAT.

THIRD DEPARTMENT.

STATEMENT OF MICHAEL KRAKER.

To the Gold Medal Committee:

GENTLEMEN: Allow me to present my claims for the gold medal, by making the following statement:

The following goods in the Third Department were entirely of California manufacture:

Ladies', misses', children's, and infants' clothing and undergarments, in great variety.

Ladies' and children's corsets and shoulder braces.

Ornamental needlework, in great variety.

Silk embroidery, in great variety.

Embroidered and braided children's and infants' clothes.

Embroidered undersleeves, collars, and handkerchiefs.

Embroidered sofa cushions, piano stool covers, slipper patterns, etc.

Imported goods:

Laces, lace goods, and tatting, of every description and variety.

A most elegant display of fancy goods and dry goods.

A fine assortment of Bohemian and China vases.

Parian marble figures and statuary.

Bronze figures and statuary.

The elegant bronze figure, "Arab and Lion," from the Paris Exposition.

Carvings in wood, etc.

This combination made my display decidedly the largest, most attractive, and meritorious display in the exhibition. My object for the past three years has been to show and prove that a success can be made in the manufacture of ladies', misses', and children's undergarments and corsets, thereby saving large amounts of money being paid to Eastern manufacturers. I claim, and it is universally acknowledged, that California-made garments are generally better made and can be furnished cheaper than an Eastern garment can be imported, for the reason that the Eastern manufacturer sells to the jobber, the jobber to the retailer, and the retailer to the consumer, thereby passing through three hands that make a profit each, while the garments that are home-made are sold direct from the manufacturer to the consumer.

There are many women in our midst who depend entirely upon their handiwork for support, and to many such I am constantly giving employment. My force now numbers about twenty-five, and I have still work for more.

That this enterprise—which is yet in its infancy upon this coast—is deserving at least of your kind attention and encouragement is obvious. I therefore kindly submit my claims for the gold medal to your superior judgment.

And with all due respect, I am, dear sirs, respectfully,

MICHAEL KRAKER.

STATEMENT OF MRS. ANNA GETTZ LUCAS.

To the President and Board of Directors:

GENTLEMEN: In making claim in the Third Department, class third, for the distinguished honor of the society's gold medal, I beg leave most respectfully to submit:

First—The material of which my wax fruit and flowers and statuary are made is entirely of California production.

Second—The fruit is faithfully copied from specimens of California fruit exhibited at the Fair of eighteen hundred and seventy-one, and consists of:

Fifteen varieties of apples.

Fifteen varieties of pears.

Four varieties of peaches.

Four varieties of grapes.

Six varieties of plums.

Twelve varieties of miscellaneous fruits.

An exhibit of forty varieties of confectionery, cakes, fancy bon-bons.

Twenty-two varieties of autumn leaves, faithfully copied from the natural leaves.

Fifteen varieties of exotic leaves.

Eighteen varieties of flowers.

Four pieces of statuary.

The California fruits and flowers are intended for exhibition at the World's Fair at Vienna.

Third—On its faithful representation of the copies furnished by the fruit growers' exhibit of eighteen hundred and seventy-one.

Fourth—On its artistic merits.

Fifth—On its usefulness to the society, by preserving fac similes of remarkably beautiful and fine fruits.

Respectfully,

ANNA GETTZ LUCAS.

STATEMENT OF MRS. C. W. BARRETT.

To the Officers of the State Agricultural Society:

GENTLEMEN: I am the manufacturer of hat and bonnet frames. Without frames, the seven milliners of this city, and all others on the coast, would have to suspend business—your wives and daughters suffer the result—no hats for comfort, nor bonnets for convenience, taste, or style; the latter rules the day. I can employ women at big wages, and then manufacture frames for one half of what it costs to get that bulky merchandise in the market. The enormous case it requires to safely pack a few dozen frames without being crushed out of shape, no one but an importer could form a correct idea of; hence the freight is enormous; and now that fashion has become a mere matter of taste, every lady wants a frame made according to her own taste, or like some friend's, seven days from New York. How are we to fill these many orders which are rapidly increasing every year? Are we to take the different orders, describe their various peculiarities, and send them to New York and order a manufacturer to make one of each kind? Perhaps not another lady would want hers just like those ordered, from mere fancy. Even if we should send for a cargo of the most desirable shaped frames that would be called for to-day, long ere they reached the Pacific Coast they would be so far out of style, or behind our earlier Spring seasons—a style we saw a month ago—Mrs. A. or B., direct from the East with a still later style—something different—they could not accept the very frames they ordered a month ago; hence the result, a stock of frames, and bonnets made on them, left on the importer's hands, useless for any purpose whatever. Without a home manufacturer of frames our profits are overbalanced with the expense of freight and such unsaleable goods when a month or two old, and yet, when new, they are so essential to women and children's wants. Women of all classes, from the infant in the buggy to the lady in the carriage, down to the market women on the street, must have their heads covered, or partly covered, according to taste—all by the milliners, who cannot make any kind of head-covering without a frame from a frame manufactory to work their various fabrics on. Without a home manufactory of frames our business must go down, and when milliners fail in business their entire stock of goods made up on frames, three months old, will not bring twenty-five per cent of cost. It is not as in early days before the railroad, when a full stock could be sent to us and the ladies know nothing else for that season; and even then fashion was governed more by what was said to be worn in New York or Paris. But now the ladies think for themselves, and order hats made from their own taste, or from some particular friend's from the East, and will not have what the majority wear. Almost every day we hear it: "Can't you get me a different frame; Mrs. Grundy has one like that or this." The last frame I finished to order was unlike anything I ever saw, it being the fancy of a customer.

Now, gentlemen of the committee, I appeal to your judgment, how are we to fill these peculiarly difficult orders of this nature crowding themselves upon us by all the ladies, without a home manufactory of hat and bonnet frames? What branch of business in the Third Department gives employment to one half the number of women that this does? Shut up the stores of any other in the Third Department for one month, and who would notice it? But shut up the milliner stores for one week only, and then see the tumult among women and children! Without frames we could not keep up. If the frame business is not meritorious, what would your families do without it? What could the thousands of milliners do for a living, with all the women they employ at good wages, and all the girls they support as apprentices? Without this business, only think of the number of women that would have to compete with the Chinese washtub. Our strength not being sufficient for this laborious task, hence the cry of women and children suffering for bread, hats, and bonnets, and the more horrible cry of woman suffrage for a wider field of labor to be engaged in. Without a home manufactory of hat and bonnet frames we, the community of women—rich and poor, old and young—are at a loss to know what to do for the covering of heads or employment of hands.

Respectfully yours,

MRS. W. C. BARRETT.

STATEMENT OF MRS. A. O. COOK.

To the Committee on Gold Medals:

GENTLEMEN: Having entered my name for the society's gold medal for the most meritorious exhibition in the Third Department of the Fair of eighteen hundred and seventy-two, I herewith submit to your notice my reasons for so doing:

The society claims to encourage inventions made in the State, and my having invented the process of preserving natural flowers with chemicals, I kindly ask the committee to think well of this very important and useful discovery. It has long been felt the want of an improved way of preserving natural flowers. The old way of preserving flowers in sand and by incasing them in wax has failed to answer, from the fact that in three or four months they will turn black and fall from the stem, whilst mine will retain their original color and are even stronger than when first plucked. Owing to the decided advantage over the old way, my process will be wholly used, and the old way will be entirely discarded. As you see by the inclosed document that the principal florists of San Francisco have indorsed all that I claim, *i. e.*, it is an important discovery.

Yours, respectfully, MRS. A. O. COOK.

FOURTH DEPARTMENT.

STATEMENT OF GEO. G. W. MORGAN.

To the Gold Medal Committee:

GENTLEMEN: I have on exhibition some samples of artificial stone manufactured by the Union Stone Company of Boston, Massachusetts, and which, it is thought, will show its feasibility and practicability just as well as if the company had incurred the great expense of sending large quantities of heavy stone columns, etc., here.

By the accompanying printed paper will be seen the great variety of artificial stones that can be manufactured under their process. It will also be seen by the report of Major General Gillmore, United States Army, the wonderful strength and superiority of the stones manufactured under this patent.

When it is considered the immense amount of building stone required in the construction of our public and private buildings, of canals, of railroads, monuments, etc., it is hardly possible to overestimate its advantages. The refuse of our quartz mills can be converted into handsome Corinthian columns, etc., at a mere nominal expense—say fifty cents per bushel—the ingredients being magnesian limestone and bittern water (the refuse of sea-salt works).

I trust the absence of display will not prejudice the claim of this invention "for the most meritorious exhibition in this department." The principle is shown here, and at the manufactory in Boston can be seen such a quantity and variety of manufactured articles, that if they were here they would leave nothing to be desired.

Very respectfully, yours,

GEORGE G. W. MORGAN.

It is proper to state that the few samples of artificial stone here exhibited were not manufactured for the purpose, but are merely sent here with the view of calling the attention of capitalists to the invention. It was expected, of course, that further investigation would be made at the works of the patentees in Boston, before the purchase would be effected of the patent right of this State. By reference below it will be observed that stones of any quality, size, form, or color can be made to order under this patent. These samples were forwarded from Boston, and since their arrival have been subjected to rather rough usage by parties who have examined and tested their merits, often from motives only of idle curiosity. Major General Gillmore, the eminent engineer, who had charge of the United States forces before Charleston, South Carolina, was detailed by the Government to investigate the subject of building stone, and reported as follows:

Material.	Crushing weight per square inch in pounds.
Natural—	
Granite, Patapsco	5,340
Granite, Quincy	15,300
Marble, Montgomery County, Pennsylvania	8,950
Sandstone, strong	5,500
Sandstone, Connecticut	3,319
Artificial—	
Brick, first quality hard	4,368
Beton, Coignet's	7,500
Concrete, Ransome's	6,720
Frear stone	4,500
Sorel, Union Stone Company	21,562½

A NEW ARTICLE OF MANUFACTURE.—The Union Stone Company, of Boston, Massachusetts, by recently invented and patented processes, are enabled to manufacture building and other stone, in exact imitation of nature, molded into any useful or artistic form, as required. They are also enabled to combine stones of the same or various colors and qualities, and thus produce beautiful results for the arts and manufactures. The following are some of the articles now being manufactured by this company, the quality and durability of all guaranteed:

Building stones and bricks, in imitation of marble, granite, slate, sandstone, freestone, etc.

Soapstone sinks and tubs, without joints.

Register frames, and other articles usually made of soapstone.

Tiles, curbstones, pavements, posts, foundations for buildings and machinery, roofing, etc.

Emery wheels, of all sizes and grades, quality hitherto unequaled.

Hones, oil, or whetstones, in every degree of hardness or fineness, to suit all trades.

Grinding stones, of all sizes and degrees of fineness and hardness, alike in all parts, having no soft places.

Mantel-pieces, table tops, and other ornamental articles in imitation of natural stone, of any kind, or in any colors, perfectly polished.

Imposing stones for printers' use, fossil remains copied for museums of natural history, imitations of ivory, billiard balls, etc.

Stones of any quality, size, form, or color, can be made to order.

STATEMENT OF THE CALIFORNIA CHEMICAL PAINT COMPANY.

To the Gold Medal Committee:

GENTLEMEN: At your State Fair, which closed on the twenty-seventh of September, the undersigned exhibited samples of the Averill chemical paint, in a liquid state, on redwood boards, on tin, and paper, and our company's name also appears on your Entry Clerk's book as one of the competitors for the most meritorious exhibition in this department. While at the Fair the Entry Clerk informed us that our claim for the gold medal must be made in writing and addressed to you. Thus we claim for our paint the following:

First—Economy, as any desired surface can be covered (two-coat work) fifteen per cent cheaper than with lead and oil paint.

Second—Its durability, which by actual use on buildings over seven years old in the Eastern States, and over three (we have only been in this State three years and three months) years old in California, seemingly as good as at first, is a conclusive test, and has proven itself to last twice as long as lead and oil paint without peeling, cracking, or chalking off.

Third—Its appearance is more beautiful than any other paint heretofore used, and the gloss obtained by our paint is not due to an admixture of varnish, but forms a constituent part of its combination.

Fourth—Its salubrity is another great consideration, as our paint is a chemical combination of pure zinc, linseed oil, and soluble glass. No deleterious or poisonous agent enters into its composition, as in the lead paints, and by its use the workmen are neither subject to paralysis or painters' colic, as no lead or turpentine enter into its composition.

Fifth—As a home industry and manufacture our paint should be encouraged, as statistics prove that we import yearly over fifty millions of dollars worth of paint; and, as already stated, we can compete favorably with any kind of paint, and by such encouragement our manufacturers of zinc and linseed oil would thus find a wider market for their products.

Sixth—It is not presuming too much for our paint as an indispensable article of daily use and consumption, so meritorious, as substantiated by the above exposé, that if the society had offered only one gold medal for the most meritorious article at the entire Fair we sincerely believe that we should be entitled to the same, not only for the appearance, efficacy, durability, economy, and salubrity of our paint above all others, but for its combination—being one of the greatest inventions of the age—as is duly attested by the best chemical talent of this coast, and confirmed by the scientific testimonials of the most talented chemists of the Eastern States.

In addition to the above we wish to call your attention to our circular (herewith inclosed), from page fifth to page ninth, inclusive; also a part of page fifteenth, as we claim that our paint is nearer fireproof than any other paint; also a part of page twenty-first, as a part of our claim.

We are an incorporated company, for this State only, on a capital stock of one hundred and fifty thousand dollars, and claim to be responsible for all that we may say, and determined to build up our trade by truth and merit.

Hoping that the above partial exposé of our paint will meet the due consideration of the committee, and, willing to answer any further inquiries, we remain, dear sirs,

Yours respectfully,

CALIFORNIA CHEMICAL PAINT CO.

JESSE HEALY, } Agents.
M. C. JEWELL, }

[Report from the Scientific Press, October 7th, 1871.]

CALIFORNIA CHEMICAL PAINT COMPANY.

To the California Chemical Paint Company, Manufacturers of D. R. Averill's Patent Chemical Paint:

GENTLEMEN: In compliance with your request, I herewith submit for your consideration the following report of analyses of samples of D. R. Averill's chemical paint in its natural state, as manufactured by you in San Francisco, corner of Fourth and Townsend streets; also report on samples of boards painted with said patent paint, which you submitted for a series of comparative tests to be made with samples of boards painted by the best lead paints that could be procured in this city.

The comparative results of tests on these painted boards by the action of steam heat, sulphurous gases, alcohol, alkalies, and acids, prove that this chemical paint is unrivaled. The perusal of the following synopsis of its chemical nature and merits of composition as a paint will prove the above assertion, and that said paint must be considered a new and superior article. This testimony is also corroborated by the able reports on the subject by Professor C. F. Chandler, T. Lang Cassels, B. Hedrick, and others, to whom I am largely indebted, and who unanimously consider the invention of D. R. Averill one of the most valuable and scientific known to the arts.

It is true that any new invention or bold application of new principles will have its detractors, and so it is in this instance; but the fallacious assertions that this paint is only a mixture of benzine and water is too tame for refutation. The reading of the following will convince the most skeptical that D. R. Averill's chemical composition, as manufactured by you, possesses all the requirements and qualifications of the most perfect oil paints, and that its merits are superior to any other paints.

USE AND APPLICATION OF WATER GLASS OR SILICATE OF SODA—AVERILL'S PATENT CHEMICAL PAINTS.

Some twenty years ago Dr. Fuch, of Munich, discovered a method of painting which he called stereochromy.

The want of a vehicle more enduring than those formerly in use, and less liable to injure colors employed, led to this discovery. Dr. Fuch's method, which consists in the use of soluble silicates as the fixing material, has been applied with considerable success in Europe by German and French artists of distinction, in England by W. Herbert in the House of Parliament, and in the fresco painting in the Capitol at Washington, United States. The adoption of decorative and ornamental painting for the embellishment of public and private buildings has rendered necessary some changes in the older processes of painting, because the requirements are different. Outside and wall paintings are more exposed to destructive influences than that on panel and canvas. The wall itself is more absorbent; the accumulation of dirt, which has from time to time to be removed; the impossibility of giving the same care to its preservation as to objects of smaller size which are movable—render the employment of a different method of painting necessary; and one which will leave it in such a state that it may, so to speak, take care of itself, and be independent of any further attention.

Silicate, or silicious painting, seems to supply all that is wanted for beauty and stability. It makes the surface of the wall almost impervious to moisture; it fixes the colors firmly to the ground, and is easy of application. But the process discovered by Dr. Fuch seems incomplete and open to some grave objections, although the principle on which it rests is sound. The above remarks are not intended to disparage Dr. Fuch's discovery, which is, in truth, one of the most important to art ever made. To this model and great man all who are interested in the advancement of art owe a deep debt of gratitude for his persevering labors, pursued for many years amidst much discouragement and many difficulties. Those who read his treatise on stereochromy cannot but feel delighted with the earnestness and singleness of purpose with which he labored to attain the high end which he set before him. He thus concludes the account of his investigations: "But before all, I thank God, who graciously allowed his weak and aged servant to finish the preceding investigations so far that others may build upon the foundation that I have laid." He evidently saw that much remained to be done to perfect the process which he had originated. The honor to have brought this invention to perfection belongs therefore to D. R. Averill, who, if he has not found the philosopher's stone, has at least produced a paint worthy of a philosopher, and which promises to become the paint of the age. Although five years are not five centuries, chemistry has analyzed even the tooth of time, and can produce within the period of a comparatively brief experiment, results identical with those of the ages of atmospheric corrosion and disintegration.

Samples of Averill's chemical paint have been boiled, heated, frozen, and pickled in alkalies and acids, and fumigated with foul gases. It has been boiled and then immediately placed on ice, so as to freeze whatever water might have been absorbed; and it has also been heated and then plunged into ice water, but without any sign of cracking or softening, superficially or otherwise. No other paint could stand these tests. The durability of Averill's chemical paint does not rest alone upon such evidence as this, for it is of the simplest chemical composition. Chemistry testifies to the durability, if not the indestructability of a material which is nearly silica, like flint, and is, consequently, unalterable in air; and as this new paint is almost impermeable, it will suffer little or any injury from the moisture of frost. We may, then, as lawyers say, "admit" the durability, and if further evidences are necessary, the many applications of this paint made in this State during the last two years is sufficient to show that it is a true and permanent paint for either outside or inside application. Previous to Averill's invention paints were only mechanical mixtures, consisting of:

1. Pigments—Such as carbonate of lead; oxide of zinc; lampblack; ochres, raw or burnt, etc., purchased by the painter from the manufacturer. These pigments are generally dry, or ground with a small quantity of linseed oil.
2. Oils—Generally boiled linseed or poppy oil.
3. Diluting or thinning agent—Spirits of turpentine, which has been replaced within a few years to a greater or less extent by benzine, a light naptha derived from petroleum.
4. Varnishes—To give a gloss, copal resin or shellac dissolved in turpentine, linseed oil, benzine, alcohol, or a mixture of some of them.
5. Dryers or siccatives—Metallic oxides or salts, either previously boiled in the oil or added by the painter in mixing.

The disadvantages of paints prepared as above described, are:

1. That in the ordinary oil paint, formed by the grinding of metallic oxides or carbonates, there is no substantial union between the oil and the metallic pigments employed.
2. Paint thus prepared would not keep, it must be used at once; any portion which might be left over would spoil in a few days, the heavy pigment settling to the bottom of the vessel and becoming more or less hard, while the oil becomes thick and soapy, or stringy, in its consistency. After paint has passed to this condition, it is no longer possible, even by the process of grinding, to reduce it to a uniform and smooth consistency.
3. Ordinary oil paint, when exposed to the action of the atmosphere, after a certain time the pigment becomes loose or detached from the oil, rendering the surface chalky, especially when the pigments contain a large proportion of barytes, which, properly speaking, forms no union with the oil.

The Averill chemical paint, although an oil paint, is not liable to these objections; it can be prepared ready for use, in large quantities, at the manufactory, sent to any distance, or kept any length of time, without change. Put up in barrels, or other convenient packages, it may be drawn from time to time for use in convenient quantities, and such portion as may not be consumed may be returned to the package for future use. Any person who can handle a brush becomes a painter for the time being. "Why?"

Because the Averill chemical paint is in a permanent liquid form, a result obtained by the use of the following chemicals: acetate of lead, sulphate of zinc, hydrate of calcium, and silicate of soda, in addition to the pigments, oxide of zinc, the oleaginous substance, boiled linseed oil, and the thinning or diluting agent, benzine, manufactured specially for this paint, and which cannot be replaced by the ordinary benzine now in common use, which destroys, rather than benefits, any paint. The combination of these chemicals are:

1. Their action upon the oil, producing with it an "emulsion," or intimate mixture of oil and watery solution from which the oil cannot separate on standing, and from which the pigment cannot separate as sediment. The alkaline constituents in this paint, viz: hydrated calcium and silica of soda, are not present in sufficient quantity, or of the proper concentration, to effect a true saponification of the oil, as by analysis the oil is recovered unchanged, which could not be the fact had it been subjected to saponification.

2. The action of these chemicals upon each other produces more or less of a gelatinous substance, which, added to the viscidity of the oleaginous mixture and its peculiar combination, renders the mass homogenous and uniform in consistency and chemical and mechanical effect. The compound paint resulting in a body so uniform and permanent, that, practically, there is no separation possible in its constituent ingredients.

3. The effect of soluble silicate of soda (water glass) in this paint, made of boiled linseed oil and metallic salts of lead and zinc (acetate of zinc and sulphate of lead) is to render the paint, as already stated, more viscid or glutinous, a property so important as to prevent the separation of the solid parts of the paint, which happens with paints mixed in the old way.

4. The value of this paint, aside from its permanency of liquid, consists in its affording a means of protection to wood and other surfaces against the action of the elements.

5. By the presence of a gelatinous silica and the alkaline ingredients, combined with the oil, this paint forms, as has been proved by experience, a coating comparatively fireproof.

6. It is also remarkable for its elasticity, possessing the important and peculiar advantage of not breaking up into chip cracks, consequent upon the oxidation of the oil; its surface, therefore, remains smooth and uniform after long exposure. The brilliant gloss or polish, due to the manner of its composition, is another feature over ordinary oil paint in which a gloss can only be obtained through dammar or other resinous varnish.

7. It seems strange that year after year persons should go on painting their residences with a material like white lead, which every one knows changes color from the action of sulphur gases, which are always present in the atmosphere; whereas the basis of Averill's paint being zinc, there is no liability of discoloration by these gases. It is free from the poisonous effect of lead paint (painter's colic), and by virtue of the peculiarity of its constitution it can be washed with soap or alkaline water with a freedom which would be destructive to ordinary oil paints.

8. The value is not dependent wholly, as in the case of oil paints, upon its hardening on exposure to the atmosphere by the evaporation of its volatile constituents and the solidification of the oil, under the influence of the atmosphere; but it is already in such a condition of firm chemical and mechanical union that when a surface freshly covered therewith is drenched immediately after it is put on, by a shower of rain, it is not washed or furrowed by the water, as is the case with ordinary oil paint.

9. The universal adaptability makes it the most perfect substance known, and this invention is one of the most valuable and scientific known to the arts.

Although the use of soluble water glass in painting was quite suggestive in its new application, still a proper combination was required to avoid the quick drying which results when oxide of zinc is ground with silicate of soda, due also to the state of concentration of said solution of water glass, which is a matter of considerable importance in this paint. In its practical application it required a combination of oil, with other ingredients, to form not a mere mechanical mixture, which, on standing for more or less time, would separate, and on being applied to wood, metals, or stone, would fade or chalk off. Such a combination as to obtain a product meeting all the requirements of a perfect paint, durability, readiness of application, universal adaptability, retention of colors, special qualification of covering and easy to spread, perfect adhesiveness, resistance to water, and preservation of wood and stone, was the aim of the inventor. It has proven a real commercial article, which will, from its chemical nature, prove more durable than oil paints. It does not blacken by exposure to sulphurous vapors, dries quickly, resists dampness and the action of water, can be cleansed with boiling water and soap, and preserves the wood from decay, rendering it at the same time incombustible, instead of increasing the danger from fire, as is the case with oil paints. I am confident of its ultimately superseding the use of all other paints for external or internal application on stone, wood, or metals.

L. LANSZWEERT, Analytical Chemist.

STATEMENT OF THE SAN FRANCISCO GLASS WORKS.

To the Committee on the Award of Gold Medals for the State Agricultural Society:

Gentlemen: The undersigned herewith presents his claim for the gold medal to be awarded in the Fourth Department.

First—I claim that the hollowware glass exhibited by me at the late State Fair was manufactured at my factory; and further, that the color, style, and finish of my vials and bottles have never been excelled in this State; further, that my general display, aside from ornamental curiosities, consisted of over one hundred different varieties and shapes of staple hollowware glass, ranging from a one-ounce vial to a twelve-gallon carboy, and consisted in part of vials of all styles, such as prescription, panels, ovals, etc.; also, sixteen different private brands of bottles for mineral and soda waters; also, bottles for a great variety of patent medicines; also, pickle jars, mustards, etc.; black and amber-colored brandy and wine bottles, clarets, and champagnes; carboys; acid bottles with ground stoppers; also, pressed glass stoppers, and deadlights for pavements and street cars, as also various sizes of demijohns covered with rattan.

Second—I claim that in producing the above articles there is a great liability of loss incurred, and there are but few businesses which require so much vigilance and personal skill to make it a success; and in no other business is success so dearly bought, or more deserving of being honored and encouraged. In this State the glass manufacturing business has met with difficulties to be found in no other place in the United States, and we have had to contend with exorbitant interest on money, high-priced labor and fuel, unknown varieties of material, and the strong competition of foreign manufacturers and importers. All these have combined (who have considered the Pacific coast their market) to render glass-making the most hazardous and difficult business to engage in. The writer states these facts that the Board may have some idea of the difference between this enterprise and others that have been represented at the late Fair. He also desires that you should realize the fact that where superiority has been attained in glass-making, the producer should be awarded according to his merits, as the result is not obtained simply by using prescribed formula of ingredients, but is mainly dependent on the skill of the manufacturer and operatives, as was plainly shown at the late Fair.

Third—We employ at our works at the present time forty-five men and boys, and expend annually for material and labor about seventy-five thousand dollars. At present we are running the works up to their full capacity in order to supply the great demand for our wares, and we have no doubt that the time is near when it will require several such works as ours to supply the great demand for bottles that will be required by the wine and brandy interests of this coast.

Fourth—You are all no doubt aware of the great importance of the manufacture of glass. No other article has contributed so much to the happiness of mankind. To the sciences its benefits are not to be overestimated; and I might here be allowed to say that the day is not far distant when, by the genius of man, aided by the capital of some great nation, glass will be made of such purity, and be made in such immense sheets, that enormous telescopes will be constructed which will reveal the mysteries of the Universe, and not only astonish, but elevate mankind.

All of which is respectfully submitted.

CARLTON NEWMAN.

STATEMENT OF THE SACRAMENTO VALLEY BEET SUGAR COMPANY.

To the Gold Medal Committee of the State Agricultural Society:

GENTLEMEN: The Sacramento Valley Beet Sugar Company claims a gold medal for the following reasons:

First—This is the pioneer sugar factory of the Pacific coast, having been incorporated in eighteen hundred and sixty-eight.

Second—It has inaugurated an enterprise in our midst that employs a capital of two hundred thousand dollars, and has under cultivation more than one thousand acres of land.

Third—It has been the means of increasing the value of lands in its vicinity more than fifty per cent.

Fourth—It gives employment to more than one hundred men during the manufacturing season, and to nearly three hundred during the season of plowing and cultivating.

Fifth—The product of the factory this year will be:

Sugar, about	$110,000
Syrup, about	6,000
Pulp for cattle	5,000
Total, about	$121,000

Sixth—The enterprise has been the means of introducing a new article of food for fattening cattle and for milch cows; this is the pulp or refuse of the beets after the sugar is extracted. More than five thousand tons of this pulp will be fed to cattle this year.

Seventh—The sugar produced this year is equal in all respects to the cane sugar made by the refineries of San Francisco. It is equally white, equally sweet, and shows as fine and perfect a crystal as any sugar offered in the State of California.

Samples of our products, in every stage of manufacture, were exhibited at the late State Fair.

All of which is respectfully submitted.

W. E. BROWN,
President S. V. B. S. Co.

STATEMENT OF J. J. CASS.

To the Committee on Award of Gold Medals, Agricultural Fair:

GENTLEMEN: I desire to be considered an applicant for the gold medal of the Fourth Department. I have on exhibition a case of California-made cutlery, and as I am desirous of honoring the reputation of the State for its manufactures, I have taken great pains to have the best stock I could obtain to make this cutlery from, and it would be a great benefit to me, and indirectly to the State, to have my little collection receive the consideration its merits deserve, over imported articles.

Very respectfully,

J. J. CASS.

STATEMENT OF HUNTINGTON, HOPKINS & CO.

To the Gold Medal Committee:

GENTLEMEN: We herewith inclose a catalogue of a portion of the hardware exhibited by us at the last annual State Fair, and claim the award of the society's gold medal for having made the most meritorious display in the Fourth Department. We would call special attention to the variety and number of articles composing our exhibition, consisting of many articles of California manufacture, as follows:

Silver-mounted laurel lime squeezers.

Silver-mounted mahogany lemon squeezers.

Ivory handle corkscrews, carving knives, forks, and steels, manufactured by J. H. Schurtz, of San Francisco.

Cotton rope, whale line, Manila cordage, and baling rope, manufactured by Messrs. Tubbs & Co., San Francisco.

The celebrated IXL anti-friction metal, manufactured in Sacramento, by Hammond & Co.

Selby & Co. anti-friction metal, and an assortment of drop shot, manufactured by the San Francisco Lead Pipe and Shot Works.

Also, an assortment of John Wright's celebrated picks.

In addition to the above you will please to refer to the various articles of American, English, and German hardware, as enumerated in catalogue annexed hereto.

While we are satisfied the value of our exhibition exceeded the value of all the articles exhibited on that floor, we are willing to leave the matter in your hands, and willingly abide your decision.

We remain, respectfully, your obedient servants,

HUNTINGTON, HOPKINS & CO.

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DISPLAY OF LOCKS, TRIMMINGS, ETC.

One mahogany sample board of the Russell & Irvine Manufacturing Company, comprising:

One patent bronze sliding door lock, bronze handle, two steel keys.
Two patent bronze mortice door locks, two steel keys.
Two patent bronze mortice door locks, patent night work, two steel keys.
Two patent bronze dead door locks, two steel keys.
Three pair patent bronze mortice handles.
Three patent bronze shutter knobs.
Three patent bronze turnbuckle knobs.
One patent bronze bell pull.
One patent bronze flush drawer handle.
One patent bronze drawer pull.
One pair patent bronze door hinges.
One pair patent bronze escutcheons.
One pair Lara escutcheons.
One pair Lara door knobs, dark brown.
One pair Lara door knobs, yellow.
One pair Lara drawer knobs.
One pair Lara shutter knobs.
One mahogany sample board, similar in description to above.

One case containing window and window blind, shutter and door trimmings, comprising:

One pair electro-plated sash lifts, No. 1,871.
One pair electro-plated sash lifts, No. 61.
One pair electro-plated sash lifts, No. 25.

One pair Berlin bronze sash lifts, No. 2,191.
One pair Berlin bronze sash lifts, No. 1,807.
One Berlin bronze cupa. catch, No. 123.
One Berlin bronze cupa. catch, No. 145.
One Berlin bronze cupa. catch, No. 50.
One Berlin bronze cupa. catch, No. 8.
One Berlin bronze cupa. catch, No. 6.
One Berlin bronze cupa. catch, No. 7.
One electro-plated cupa. catch, No. 368.
One electro-plated cupa. catch, No. 352.
One electro-plated cupa. catch, No. 32.
One electro-plated cupa. catch, No. 284.
One electro plated cupa. catch, No. 354.
One electro-plated cupa. catch, No. 362.
One electro-plated cupa. catch, No. 345.
One electro-plated cupa. catch, No. 365.
One electro-plated cupa. catch, No. 343.
One electro-plated cupa. catch, No. 343.
One Judd's bronze sash fastener, Nos. 150 and 156.
One Judd's bronze sash fastener, No. 386.
One Judd's bronze sash fastener, No. 1,803.
One Judd's bronze sash fastener, No. 1,908.
One Judd's bronze sash fastener, No. 195.
One Judd's bronze sash fastener, No. 135.
One Judd's bronze sash fastener, No. 273.
One Judd's bronze sash fastener, No. 156.
One electro-plated sash fastener, No. 436.
One electro-plated sash fastener, No. 154.
One electro-plated sash fastener, No. 195.
One electro-plated sash fastener, No. 386.
One Berlin bronze shutter bars, No. 84.
One Berlin bronze shutter bars, No. 21¼.
One Berlin bronze shutter bars, No. 11.
One Berlin bronze shutter bars, No. 81½.
One Berlin bronze shutter bars, Field's patent, Nos. 1 and 2.
One Berlin bronze shutter bars, New York pattern, each 1½, 2, 2¼, 2½, and 3 inches.
One electro-plated shutter bars, Boston pattern, each 1½, 2, 2¼, 2½, and 3 inches.
Two Jales' patent iron store door locks.
One Jales' patent chest lock, large.
One Jales' patent chest lock, small.
One Gem patent combination till lock, plated.
One electro-plated sliding door lock, with patent T cups and handles.
One pair patent bronze sliding door locks, patent handles, glass knobs.
One pair patent electro-plated sliding door locks, patent handles, glass knobs.
One case cutlery containing:
One set ivory handle table knives.
One set ivory handle dessert knives.
One pair ivory handle carvers.
One pair ivory handle carvers, game.
One ivory handle table steel.
One set patent rubber handle, ivory tipped, table knives.
One set patent rubber handle, ivory tipped, dessert knives.

One pair patent rubber handle, ivory tipped, carvers.
One pair patent rubber handle, ivory tipped, game carvers.
One patent rubber handle, ivory tipped, steel.
One patent leather case, containing sample knives and forks of every variety, from the cheapest to the very finest quality.
One velvet stand of pocket knives, thirty knives, comprising:
Six fancy gents' pocket knives, IXL, two blades, ivory, assorted.
Six fancy gents' pocket knives, IXL, three blades, tortoise, assorted.
Six fancy gents' assorted knives, IXL, four blades, pearl handle, assorted.
Six fine gents' sporting knives, IXL, four blades and various tools.
Six fine gents' buck handle knives, IXL, assorted blades.
One fine budding knife.
One fine castrating knife.
One fine hunting knife.
One pair Schurtz's patent carvers, California manufacture.
One set electro-plated dinner forks, Persian pattern.
One set electro-plated dessert forks, Roman pattern.
One set electro-plated dinner spoons, Gothic pattern.
One set electro-plated dessert spoons, Olive pattern.
One lime squeezer, California laurel, California manufacture, Schurtz.
One lime squeezer, California mahogany, California manufacture, Schurtz.
Three corkscrews, California manufacture, Schurtz.
One case containing Post & Goddard's machinists' tools:
One set of three taps, plug, taper, and bottoming, 1-8 inch.
One set of three taps, plug, taper, and bottoming, 3-16 inch.
One set of three taps, plug, taper, and bottoming, 3-16 1-32 inch.
One set of three taps, plug, taper, and bottoming, 1-4 inch.
One set of three taps, plug, taper, and bottoming, 1-4 and 1 32 inch.
One set of three taps, plug, taper, and bottoming, 5-16 inch.
One set of three taps, plug, taper, and bottoming, 5 1-2 16 inch.
One set of three taps, plug, taper, and bottoming, 3-8 and 1-32 inch.
One set of three taps, plug, taper, and bottoming, 3-8 inch.
One set of three taps, plug, taper, and bottoming, 31-48 inch.
One set of three taps, plug, taper, and bottoming, 4-8 and 1-32 inch.
One set of three taps, plug, taper, and bottoming, 4-8 inch.
One set of three taps, plug, taper, and bottoming, 4 1-2 8 inch.
One set of three taps, plug, taper, and bottoming, 5-8 inch.
One set of three taps, plug, taper, and bottoming, 5-8 and 1-32 inch.
One set of three taps, plug, taper, and bottoming, 5 1-2 8 inch.
One set of three taps, plug, taper, and bottoming, 5-8 and 3-32 inch.
One set of three taps, plug, taper, and bottoming, 6-8 inch.
One set of three taps, plug, trper, and bottoming, 6-8 1-32 inch.
One set of three taps, plug, taper, and bottoming, 6 1-2 8 inch.
One set of three taps, plug, taper, and bottoming, 6-8 3-32 inch.
One set of three taps, plug, taper, and bottoming, 7-8 inch.
One set of three taps, plug, taper, and bottoming, 7-8 and 1-32 inch.
One set of three taps, plug, taper, and bottoming, 7 1-2 8 inch.
One set of three taps, plug, taper, and bottoming, 7-8 3-32 inch.
One set of three taps, plug, taper, and bottoming, 1 inch.
One machinists' taper tap, 1-8 inch.
One machinists' taper tap, 1-4 inch.
One machinists' taper tap, 1-4 1-32 inch.
One machinists' taper tap, 5-16 inch.

One machinists' taper tap, 5-16 1-31 inch.
One machinists' taper tap, 3-8 inch.
One machinists' taper tap, 3-8 1-32 inch.
One machinists' taper tap, 3 1-2 8 inch.
One machinists' taper tap, 3-8 3-32 inch.
One machinists' taper tap, 4-8 inch.
One machinists' taper tap, 4-8 1-32 inch.
One machinists' taper tap, 4 1-2 8 inch.
One machinists' taper tap, 4 8 3-32 inch.
One machinists' taper tap, 5-8 inch.
One machinists' taper tap, 5-8 1 32 inch.
One machinists' taper tap, 5 1-2 8 inch.
One machinists' taper tap, 5-8 3-32 inch.
One machinists' taper tap, 6-8 inch.
One machinists' taper tap, 6-8 1-32 inch.
One machinists' taper tap, 6 1-2 8 inch.
One machinists' taper tap, 6-8 3-32 inch.
One machinists' taper tap, 7-8 inch.
One machinists' taper tap, 7-8 1-32 inch.
One machinists' taper tap, 7 1-2 8 inch.
One machinists' taper tap, 7-8 3-32.
One machinists' taper tap, 1 inch.
One machinists' taper tap, 1 1-32 inches.
One machinists' taper tap, 1 1-16 inches.
One machinists' taper tap, 1 3-32 inches.
One machinistr' taper tap, 1 1-8 inches.
One machinists' taper tap, 1 5-32 inches.
One machinists' taper tap, 1 3-16 inches.
One machinists' taper tap, 1 7-32 inches.
One machinists' taper tap, 1 1-4 inches.
One machinists' taper tap, 1 9-32 inches.
One mhchinists' taper tap, 1 5-16 inches.
One machinists' taper tap, 1 11-32 inches.
One machinists' taper tap, 1 3-8 inches.
One machinists' taper tap, 1 13-32 inches.
One machinists' taper tap, 1 7-16 inches.
One machinists' taper tap, 1 15-32 inches.
One machinists' taper tap, 1 1-2 inches.
One machinists' taper tap, 1 17-32 inches.
One machinists' taper tap, 1 9-16 inches.
One machinists' taper tap, 1 19-32 inches.
One machinists' taper tap, 1 5-8 inches.
One machinists' taper tap, 1 11-16 inches.
One machinists' taper tap, 1 23-32 inches.
One machinists' taper tap, 1 3-4 inches.
One machinists' taper tap, 1 7-8 inches.
One machinists' taper tap, 2 inches.
One machinists' solid reamer, 3-16 inch.
One machinists' solid reamer, 7-32 inch.
One machinists' solid reamer, 1-4 inch.
One machinists' solid reamer, 9-16 inch.
One machinists' solid reamer, 19-32 inch.
One machinists' solid reamer, 5-8 inch.
One machinists' solid reamer, 5-8 1-32 inch.
One machinists' solid reamer, 11-16 inch.

One machinist's solid reamer, 23-32 inch.
One machinist's solid reamer, 3-4 inch.
One machinist's solid reamer, 25-32 inch.
One machinist's solid reamer, 6 1-2 8 inch.
One machinist's solid reamer, 6-8 1-32 inch.
One machinist's solid reamer, 6 1-2 8 inch.
One machinist's solid reamer, 6-8 3-32 inch.
One machinist's solid reamer, 7-8 inch.
One machinist's solid reamer, 7-8 1-32 inch.
One machinist's solid reamer, 7 1-2 8 inch.
One machinist's solid reamer, 7-8 3-32 inch.
One machinist's solid reamer, 1 inch.
One machinist's solid reamer, 1 1-16 inch.
One machinist's solid reamer, 1 3-32 inch.
One machinist's solid reamer, 1 1-8 inch.
One machinist's solid reamer, 1 5-32 inch.
One machinist's solid reamer, 1 3-16 inch.
One machinist's solid reamer, 1 7-32 inch.
One machinist's solid reamer, 1 1-4 inch.
One machinist's solid reamer, 1 9-32 inch.
One machinist's solid reamer, 1 5-16 inch.
One machinist's solid reamer, 1 11-32 inch.
One machinist's solid reamer, 1 3-8 inch.
One machinist's solid reamer, 1 13-32 inch.
One machinist's solid reamer, 1 7-16 inch.
One machinist's solid reamer, 1 15-32 inch.
One machinist's solid reamer, 1 1-2 inch.
One machinist's solid reamer, 1 17-32 inch.
One machinist's solid reamer, 1 9-16 inch.
One machinist's solid reamer, 1 19-32 inch.
One machinist's solid reamer, 1 5-8 inch.
One machinist's solid reamer, 1 21-32 inch.
One machinist's solid reamer, 1 11-16 inch.
One machinist's solid reamer, 1 23-32 inch.
One machinist's solid reamer, 1 3-4 inch.
One machinist's solid reamer, 1 24-32 inch.
One machinist's solid reamer, 1 13-16 inch.
One machinist's solid reamer, 1 7-8 inch.
One machinist's solid reamer, 1 15-16 inch.
One machinist's solid reamer, 1 31-32 inch.
One machinist's solid reamer, 2 inch.
One machinist's shell reamer, 1-8 inch.
One machinist's shell reamer, 5-32 inch.
One machinist's shell reamer, 3-16 inch.
One machinist's shell reamer, 7-32 inch.
One machinist's shell reamer, 1-4 inch.
One machinist's shell reamer, 9-32 inch.
One machinist's shell reamer, 5-16 inch.
One machinist's shell reamer, 11-32 inch.
One machinist's shell reamer, 3-8 inch.
One machinist's shell reamer, 13-32 inch.
One machinist's shell reamer, 7-16 inch.
One machinist's shell reamer, 15 32 inch.
One machinist's shell reamer, 1-2 inch.
One machinist's shell reamer, 17-32 inch.

One machinist's shell reamer, 9-16 inch.
One machinist's shell reamer, 19-32 inch.
One machinist's shell reamer, 5-8 inch.
One machinist's shell reamer, 21-32 inch.
One machinist's shell reamer, 11-16 inch.
One machinist's shell reamer, 23-32 inch.
One machinist's shell reamer, 3-4 inch.
One machinist's shell reamer, 25-32 inch.
One machinist's shell reamer, 7-8 inch.
One machinist's shell reamer, 29-32 inch.
One machinist's shell reamer, 1 inch.
One machinist's shell reamer, 1 1-32 inch.
One machinist's shell reamer, 1 1-16 inch.
One machinist's shell reamer, 1 3-32 inch.
One machinist's shell reamer, 1 1-8 inch.
One machinist's shell reamer, 1 5-32 inch.
One machinist's shell reamer, 1 3-16 inch.
One machinist's shell reamer, 1 7-32 inch.
One machinist's shell reamer, 1 1-4 inch.
One machinist's shell reamer, 1 9-32 inch.
One machinist's shell reamer, 1 5-16 inch.
One machinist's shell reamer, 1 11-32 inch.
One machinist's shell reamer, 1 3-8 inch.
One machinist's shell reamer, 1 13-32 inch.
One machinist's shell reamer, 1 7-16 inch.
One machinist's shell reamer, 1 15-32 inch.
One machinist's shell reamer, 1 1-2 inch.
One machinist's shell reamer, 1 17-32 inch.
One machinist's shell reamer, 1 9-16 inch.
One machinist's shell reamer, 1 19-32 inch.
One machinist's shell reamer, 1 5-8 inch.
One machinist's shell reamer, 1 21-32 inch.
One machinist's shell reamer, 1 11-16 inch.
One machinist's shell reamer, 1 5-8 inch.
One machinist's shell reamer, 1 21-32 inch.
One machinist's shell reamer, 1 11-16 inch.
One machinist's shell reamer, 1 3-4 inch.
One machinist's shell reamer, 1 25-32 inch.
One machinist's shell reamer, 1 7-8 inch.
One machinist's shell reamer, 1 29-32 inch.
One machinist's shell reamer, 2 inch.
One gaspipe tap, 1-8 inch.
One gaspipe tap, 1-4 inch.
One gaspipe tap, 3-8 inch.
One gaspipe tap, 1-2 inch.
One gaspipe tap, 3-4 inch.
One gaspipe tap, 1 inch.
One gaspipe tap, 1 1-4 inch.
One gaspipe tap, 1 1-2 inch.
One gaspipe tap, 2 inch.
One gaspipe reamer, 2 inch.
One gaspipe reamer, 2 1-12 inch.
One gaspipe reamer, 3 inch.

One machinist's stock and set of dies, letter A.
One machinist's stock and set of dies, letter B.
One machinist's stock and set of dies, letter C.
One machinist's stock and set of dies, letter D.
One machinist's tap wrench, letter A.
One machinist's tap wrench, letter B.
One machinist's tap wrench, letter C.
One machinist's tap wrench, letter D.
One Morse's patent drill chuck.
Two sets Morse's patent drills, from 1-32 to 5-8 inch, inclusive.
Twenty-four sets extra dies, from 3-8 to 1 inch.
One Prosser's patent tube expander, 1 1-4x3-8 inch.
One Prosser's patent tube expander, 1 1-4x7-16 inch.
One Prosser's patent tube expander, 1 1-2x3-8 inch.
One Prosser's patent tube expander, 1 1-2x7-16 inch.
One Prosser's patent tube expander, 2x3-8 inch.
One Prosser's patent tube expander, 2x7-16 inch.
One Prosser's patent tube expander, 2 1-4x3-8 inch.
One Prosser's patent tube expander, 2 1-4x7-16 inch.
One Prosser's patent tube expander, 2 1-2x1-2 inch.
One Prosser's patent tube expander, 2 1-2x3-8 inch.
One Prosser's patent tube expander, 3x1-2 inch.
One Prosser's patent tube expander, 3x7-16 inch.
One case containing Stubbs' goods.
One complete set Stubbs' dentists' files.
Knife files, each 2 1-2, 3, 3 1-2, 4, 4 1-2, 5, 6, 6 1-2 inch.
One Stubbs' patent wire and sheet-iron gauge, combined.
One pair Stubbs' callipers, 2 inch.
One pair Stubbs' callipers, 2 1-2 inch.
One pair Stubbs' callipers, 3 inch.
One pair Stubbs' callipers, 3 1-2 inch.
One pair Stubbs' callipers, 4 inch.
One pair Stubbs' callipers, 4 1-4 inch.
One pair Stubbs' callipers, 5 inch.
One pair Stubbs' callipers, 6 inch.
One pair Stubbs' callipers, 7 inch.
One pair Stubbs' spring dividers, 2 inch.
One pair Stubbs' spring dividers, 2 1-2 inch.
One pair Stubbs' spring dividers, 3 inch.
One pair Stubbs' spring dividers, 3 1-2 inch.
One pair Stubbs' spring dividers, 4 inch.
One pair Stubbs' spring dividers, 4 1-2 inch.
One pair Stubbs' spring dividers, 5 inch.
One pair Stubbs' spring dividers, 6 inch.
One pair Stubbs' spring dividers, 7 inch.
One pair Stubbs' spring dividers, 8 inch.
One pair Stubbs' cutting nippers, 5 inch.
One pair Stubbs' cutting nippers, 5 1-2 inch.
One pair Stubbs' cutting nippers, 6 inch.
One pair Stubbs' cutting nippers, 6 1-2 inch.
One pair Stubbs' cutting nippers, 7 inch.
One pair Stubbs' cutting nippers, 8 inch.
One pair Stubbs' plyers, 3 1-2 inch.
One pair Stubbs' plyers, 4 inch.
One pair Stubbs' plyers, 4 1-2 inch.

One pair Stubbs' plyers, 5 inch.
One pair Stubbs' plyers, 5 1-2 inch.
One pair Stubbs' plyers, 6 inch.
One pair Stubbs' plyers, 6 1-2 inch.
One pair Stubbs' plyers, 7 inch.
One Stubbs' small hand vise and anvil combined.
One Stubbs' patent bench vise, 2 inch face.
One Stubbs' patent bench vise, 2½ inch face.
One Stubbs' patent bench vise, 3 inch face.
One Stubbs' patent bench vise, 4 inch face.
One machinist's square, 24x18 inches.
One machinist's square, 6 inches.
One machinist's square, 8 inches.
One machinist's square, 10 inches.
Three machinist's paper scales.
One Davis' patent level, 6 inches.
One Davis' patent level, 12 inches.
One pair 24 inch dividers.
One pair tramell heads, large.
One pair tramell heads, small.
One machinist's steel rule, 3 inches.
One machinist's steel rule, 6 inches.
One machinist's steel rule, 12 inches.
One machinist's steel rule, 18 inches.
One pair Stubbs' small dividers, with ivory top.
One Stubbs' taper file, each 2, 2 1-2, 3, 3 1-2, 4, 4 1-2, 5, 6 inches.
One Stubbs' pit file, each 4, 4 1-2, 5, 6, 7, 8, 9, 10 inches.
One Stubbs' wanding file, each 3, 3 1-2, 4, 4 1-2, 5, 6 inches.
One Stubbs' flat file, each 4, 4 1-2, 5, 5½, 6 inches.
One case containing carpenters' tools.
One iron plow plane (combined Tillister screw, etc.)
One iron and wood smooth plane.
One iron and wood jack plane.
One iron and wood jointer.
One Dailey's patent iron jack.
One Dailey's patent iron smooth.
One G. T. Co.'s fancy plow.
One rosewood razee smooth plane.
One ebony razee smooth plane.
One apple tree razee smooth plane.
One boxwood razee smooth plane.
One fancy fillister plane.
One boxwood mitre plane.
One rosewood mitre plane.
One apple tree mitre plane.
One set (twelve) Barton's premium chisels, 1-8 to 2 inches.
One set (twelve) Barton's premium gouges, 1-8 to 2 inches.
One set (twelve) Spear & Jackson's chisels, 1-8 to 2 inches.
One set (twelve) Spear & Jackson's gouges, 1-8 to 2 inches.
One set Cook's patent augur bits, one each 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24 inches.
One set Jenning's patent augur bits, one each 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24 inches.
One improved try square, 8 inches.
One improved try square, 10 inches.

One improved bevel square, 8 inches.
One improved bevel square, 10 inches.
One case containing sporting goods.
One patent leather gun bag.
One fancy netted and leather game bag.
One patent leather case containing samples of shot.
One Dixon's patent hog skin powder flask (silver mounted), 12 ounce.
One Dixon's patent hog skin powder flask (silver mounted), 16 ounce.
One Dixon's patent hog skin shot flask (silver mounted), 4 pounds.
One Dixon's patent hog skin shot flask (silver mounted), 6 pounds.
Six powder flasks.
Three single shot pouches.
Three double shot pouches.
One Remington's four shooter.
Two Remington's five shooters.
Two Remington's six shooters.
One Remington's breech loading shooter.
Two Colt's five shooters.
Two Colt's six shooters.
Six kinds (all different) nipple keys and wrenches.
Two ivory dog calls.
Two buck handle pruning knives, IXL.
Two cocoa handle pruning knives, IXL.
Two black handle pruning knives, IXL.
Six pairs pruning shears (all assorted.)
Show of hardware.
One Spear & Jackson's panel saw, each 16, 18, 20, 22, 24, 26 inches.
One Spear & Jackson's hand saw, each 24, 26, and 28 inches.
One Henry Disston's panel saw, each 8, 22, 24, and 26 inches.
One Henry Disston's hand saw, each 24, 26, and 28 inches.
One Henry Disston's rip saw, each 28 and 30 inches.
One Henry Disston's hand saw, each 12, 26, and 28 inches.
Three Wheeler, Madden & Clemson's saws.
One lightning one-man saw.
One Disston's one-man saw, "Lumberman's Own."
One Disston's one-man saw, "Great American."
One lightning cross-cut saw, each 6 and 7 feet.
One Tuttle tooth narrow drag, 7 and 8 feet.
One double hook tooth, 6 1-2 feet.
Two cross-cut saws, 5 1-2 feet.
Five compass saws, assorted sizes.
Four pruning saws, assorted sizes.
Six buck saws, assorted sizes.
One pit saw, 7 feet.
Six butcher's bow saws.
One mill saw, 10 feet.
One mulay saw, 12x14.
One large circular saw.
One small circular saw.
Three claw hatchets, assorted.
Three shingling hatchets, assorted.
Two lathing hatchets, assorted.
Six engineers' hammers, assorted.
Twelve handled axes, assorted, comprising four different makers.
Ten coils Manila rope.

Two coils cotton rope, assorted.
One coil lead line.
One coil bailing rope, three-thread.
Eight hanks sash cord.
Twelve balls twine, assorted sizes and colors.
Seventeen extra axe and hatchet handles.
Thirty-eight bars assorted steel, round, square, and flat.
Three bundles iron, assorted.
One pair buggy springs.
One set (four) steel axles.
One show card carriage and buggy trimmings.
Two six-inch iron valves.
One brass globe valve, each 1-4, 3-8, 1-2, 3-4, 1, 1 1-4, 1 1-2, 2 inch.
One brass peet valve, each 1-2, 3-4, 1, 1 1-4, 1 1-2, 2, 2 1-2, 3 inch.
Two plated shower-bath cocks.
One service cock, each 3-8, 1-2, 3-4, 1, 1 1-4, 1 1-2, 2 inch.
Six finished oil cups, assorted.
Two finished globe oil cups.
One finished grease injector.
Two finished gauge cocks.
Two Mississippi gauge cocks.
Six cylinder gauge cocks.
Six loose key cocks, assorted.
Six racking cocks, assorted.
Six plain-finished bibb cocks, assorted.
Three electro-plated urn cocks, assorted.
Two pair brass rowlocks.
One large steam whistle, finished.
Eight ingots Selby's anti-friction metal.
Eight ingots IXL anti-friction metal.
One pipe vise.
One anvil.
Two transverse jacks.
Five pole picks, Wright's.
Five drifting picks, Wright's.
Two drifting picks eyes, Wright's.
Six surface picks.
One small coffee mill, Enterprise Manufacturing Company.
One large coffee mill, Enterprise Manufacturing Company.
Twenty-six bags shot, Selby & Co.
Four Barton's pump augurs.
Three pair sheep shears.
Three Grundy's patent pipe cutters.
Two Stanwood's pipe cutters.
Eighteen ratchet drills, comprising three different manufacturers.
One Mrs. Knowles' fluting machine.
One Osbourn's fluting machine.
One Fairbanks' weighing machine.
One Howe's weighing machine.
One Universal drilling machine.
Three Weston's patent pulley blocks, from 1-2 to 5 tons.
One Dole's patent pulley block.
One show card wrenches.
Two buck saws.
Two silver-plated lanterns, signal.

One locomotive headlight.
One Cowell's patent door spring.
One coil rubber belting, 3 inch.
One coil rubber belting, 4 inch.
One coil rubber belting, 5 inch.
One coil rubber belting, 6 inch.
One coil rubber belting, 7 inch.
One coil rubber belting, 8 inch.
One coil rubber belting, 10 inch.
One coil rubber belting, 12 inch.
One piece Italian hemp packing.
One piece soapstone packing, each 3-8, 1-2, 3-4, 1 inch.
One piece [] rubber packing each 3-8, 1-2, 3-4, 1 inch.
One piece round rubber packing, each 3-8, 1-2, 3-4, 1 inch.
Three coils hose, 1-2 inch, 2-ply.
Three coils hose, 1-2 inch, 3-ply.
Three coils hose, 3-4 inch, 3-ply.
Three coils hose, 1 inch, 3-ply.
Three coils hose, 1 inch, 2-ply.
Three coils hose, 1 1-4 inch, 3-ply.
Three coils hose, 1 1-2 inch, 3-ply.
Three coils hose, 2 inch, 3-ply.
Two coils hose, 2 1-2 inch, 3-ply.
Two coils hose, 3 inch, 3-ply.
One coil hose, 5 inch, 3-ply.
One coil hose, 6 inch.
Five manufacturers' show cards.

STATEMENT OF W. G. BADGER.

To Gold Medal Committee:

Gentlemen: As an exhibitor in the Fourth Department, class three, I beg to submit the following statement for your favorable consideration:

As agent for the celebrated piano manufacturers, Messrs. Hallet, Davis & Co. of Boston, I placed on exhibition a square grand piano, so novel in design and construction, and possessing so many merits as a work of art, that I beg respectfully to claim for it a special distinction over every instrument exhibited in this State, either by myself or other exhibitors, and for the following very cogent reasons:

First—It is of an entirely new, elegant, and original design, patented by the manufacturers, March first, eighteen hundred and seventy-two.

Second—It has the patent Agraffe bridge, full iron frame, and an improved repeating action of great power and delicacy of touch.

Third—It has the improved new scale, possesses unusual purity of tone, softness and brilliancy, and will keep in tune longer than any other instrument.

The pianos of Messrs. Hallet, Davis & Co., of which the one exhibited is a first class specimen, have taken no less than thirty-two first premiums over all competitors at the principal Fairs and exhibitions throughout the Union, and the justice of these awards has been earnestly indorsed by some of the greatest pianists and composers of Europe and America, all of whom have acknowledged the extraordinary mechanical ingenuity of the manufacturers, and have enthusiastically commended the rich, full, resonant bass; the clear, bell-like ringing treble, and the truly marvelous balance of tone throughout the entire instrument.

The manufactory of Messrs. Hallet, Davis & Co. may now be said to be one of the most complete in the known world. It covers no less than two and one half acres of land, gives steady employment to nearly five hundred workmen, and has turned out no less than seventeen thousand pianos. They are naturally proud of such a record, and believing that I have adduced sufficient evidence to illustrate their marked superiority over any instrument on exhibition, I most respectfully urge that I am entitled to a gold medal.

I also claim a similar distinction for the Geo. Woods & Co. cabinet reed organ, which was awarded a special premium at your Fair; the following distinct merits being claimed for them:

First—Valuable improvements and ingenious devices never before introduced into any instrument.

Second—Novelty of design and peculiarity of construction, whereby an extraordinary increase of power is obtained.

Third—Improved acoustic chambers (patented), valves, bellows, and knee swell.

Fourth—Solo stops, remarkable for the beauty and variety of their effects.

Fifth—The vox celeste stop (patented), possessing an entirely new and thrilling quality of tone—pipe-like in its nature.

Sixth—The æoline stop (patented), being an additional set of reeds, exquisitely voiced and ingeniously arranged in a separate wind chest—of exceeding softness and sweetness—capable of producing a variety of effects of most bewitching character.

Seventh—Wood's octave coupler; a complete novelty and an important invention, by which the power of the organ is nearly doubled at the will of the player.

Messrs. Geo. Woods & Co. possess one of the largest, and without any exception, the best arranged factory in America. Their machinery is of the best and most approved construction, and they are determined that their organs shall be in every respect the finest and best, regardless of cost or trouble.

It is almost superfluous for me to add another word. The distinct features claimed for these pianos and organs should speak for themselves, and I conclude by again respectfully urging that they are deserving of special recognition at your hands.

Having full faith in the superior merits of my exhibition, I respectfully submit the foregoing statement for your favorable consideration, and trusting you will award the gold medal for each of the above instruments exhibited by me in the fourth class,

I am very respectfully yours,
WM. G. BADGER.

FIFTH DEPARTMENT.

STATEMENT OF JAMES T. STRATTON.

To the honorable Gold Medal Committee:

GENTLEMEN: The undersigned, a resident of Brooklyn, County of Alameda, State of California, desires to compete for the premium offered by the State Agricultural Society for eighteen hundred and seventy-two, for the "greatest number of useful forest trees, planted in permanent plantation during the past year," and respectfully represents that he has planted, during the past year, in permanent plantation, on the Gum Tree Farm, in Castro Valley, Eden Township, County and State aforesaid, seventeen thousand six hundred Australian gum trees (*Eucalyptus*), of the following varieties, viz:

Variety.	Number.
Eucalyptus Globulus	8,000
Eucalyptus Paniculata	3,000
Eucalyptus Tereticornis	3,000
Eucalyptus Verminalis	3,000
Eucalyptus Hemiflora	300
Eucalyptus Obliqua	300
Total	17,600

And that they cover an area of about seventeen and a half acres of ground, surveyed by myself (am a practical surveyor); and that said trees are at the present time in a healthy, growing condition, and from two to four feet in height.

JAS. T. STRATTON.

Sworn and subscribed to before me the tenth day of September, eighteen hundred and seventy-two.

ASA HOWARD,
Justice of the Peace.

DESCRIPTION OF MODE OF CULTIVATION.

The seeds from which the above trees were grown were imported from Australia, and, in July, eighteen hundred and seventy-one, were sown in a frame under glass, where they remained about three months, when they were transplanted into boxes about six inches deep and two and a half feet square (about one hundred in each box), from which they were transplanted to their permanent location in April, eighteen hundred and seventy-two. The ground was well plowed, and the plants, except *E. Verminalis*, were planted in rows each way eight feet by six feet, *E. Verminalis* being planted in rows eight feet by three feet. These trees make a total of one hundred and three thousand trees planted within three years, viz: thirty-five thousand in eighteen hundred and seventy; fifty thousand, all *E. Globulus*, in eighteen hundred and seventy-one, and the present statement of seventeen thousand six hundred in eighteen hundred and seventy-two, covering, in all, about one hundred and thirty acres; and the undersigned respectfully represents that the example he has set, and the proof that he has given of the practicability of forest growing in this State, fairly entitles him to the gold medal which is to be awarded by the State Agricultural Society in this department.

Respectfully submitted,

JAS. T. STRATTON.

STATEMENT OF ROBERT WILLIAMSON.

To the honorable Gold Medal Committee:

GENTLEMEN: Your honorable Board having offered a gold medal for the most meritorious display in each of the seven departments, and I having been an exhibitor in the Fifth Department at your last exhibition, in September, eighteen hundred and seventy-two, and having entered for the gold medal in said department, I would hereby claim the award of the medal, from the following considerations:

First—That the articles exhibited by me are, and must continue to be, among the staple products of the country; they constitute a very large per cent of our articles of food, and are both luxuries and absolute necessities of life; they are among the principal articles of commerce in all our markets, and consequently bring annually a large revenue to our citizens and the State, thereby benefiting the whole community.

Second—I would claim the medal on the ground that I had on exhibition a greater and better variety of products than any other exhibitor in the Fifth Department, as reference to my entries and premiums will show.

Third—That notwithstanding the great variety of products exhibited by me, I was the actual producer of all the articles thus exhibited, with the exception of about five items, and as the object sought is to encourage actual production, I would be entitled to the award in preference to an exhibitor who did not produce the articles exhibited.

Most respectfully yours,

ROBERT WILLIAMSON.

STATEMENT OF SAMUEL COLE.

To the Gold Medal Committee:

GENTLEMEN: I have entered my exhibition of cheese, made at the last State Fair, for the gold medal in the Fifth Department, and come now to show you that it was at least meritorious.

In the exhibition of cheese, I was the only competitor, and there is consequently nothing to say as between my exhibition and that of other cheese makers. I was informed by many good judges who are accustomed to attending the State Fair that my exhibition was superior to any ever made in the State in this particular branch, and if so, it is entitled to some merit. The dairymen are too careless about putting forward their special industry, and I have come to the conclusion that I will make no more exhibitions unless I have a prospect of competition.

I believe I am only stating what those who know my business and my manner of conducting it will bear me out in, when I say I have done more to improve the cheese-making business in the State, by the introduction of new and improved tools and processes of manufacture, than any other man in the State.

This is one of the industries that can be very greatly enlarged in order to produce enough to supply the home demand and stop the flow of gold out of the State to pay for importations. We have here the cows and all the facilities to do this, and only want earnest men to take hold of it; and your committee, by awarding the medal in the Fifth Department to a representative of this industry, can do much to induce such men to look into and engage in it.

With these remarks I leave the matter in your hands.

Respectfully,

SAMUEL COLE.

STATEMENT OF WILLIAM M. HAYNIE.

To the Committee on Award of Gold Medal, Fifth Department:

GENTLEMEN: Allow me, as a competitor in this department, to call your attention to the exhibition of hops made by myself at the last State Fair, and the importance of this branch of agricultural products, as pertaining to the financial and industrial interests of this State.

I suppose that the State Board, in making provisions for the awards of the gold medals in the different departments, had in view: First, encouragement; second, dissemination of practical knowledge; third, the successful development of the different industries claiming those awards of merit. Time and space will not allow me to enter into a full discussion of the merits of this branch of agricultural industry. Suffice it to say that the hops exhibited by myself were of two varieties—the English cluster hop, and the Bavarian hop. The first were imported many years ago; the second, three or four years ago, from Bavaria. Those hops are pronounced by expert judges, both in London and New York, as well as our own State, first-class hops, outranking all other hops grown in the United States, and taking second place in the London market.

I believe the production of the hop in this State, if properly encouraged and correct knowledge be disseminated, will in a few years take rank with our most valuable articles of commercial export. The hop has the most favorable climate and soil in California of any State or district now known in Europe or America. First, we are entirely exempt from all those climatic casualties incident to the Eastern States and Europe, such as aphis, mold, mildew, blight, etc; second, the season for harvesting is so peculiarly adapted to the perfect gathering and curing of the same that we do not suffer any inconvenience while harvesting the crop; third, while it has been fully demonstrated that in Europe, for a series of ten years, the crop has not averaged above eight hundred pounds, and in the Eastern States eight hundred and fifty pounds to the acre, we in California have averaged, for the last six years, about fifteen hundred pounds to the acre.

Now, gentlemen, allow me to refer you for further information upon this subject to my essay, in Agricultural Report for eighteen hundred and sixty-seven and eighteen hundred and sixty-eight, and believing that the hop interest in all its bearings to us as a people is worthy of the award of the medal, I submit these imperfect and briefly written remarks for your consideration, and subscribe myself,

Your most obedient servant,

WILLIAM M. HAYNIE.

SIXTH DEPARTMENT.

STATEMENT OF L. A. GOULD.

To the Committee on Gold Medals:

I place my exhibition of desiccated fruits in competition for the gold medal in the Fifth Department, and after you have examined them will only refer you to the following statement of the process by which they are preserved or dried:

This fruit is placed on galvanized wire cloth, in close rooms, that will exclude all dust and insects; then a heated current of air is forced through it by a powerful exhaust fan, and the super-matureation is completed in from three to six hours. This quick process cures the fruit before it has time to go into the fermenting stage. All sun-dried fruit goes through a thorough fermentation and decaying process, imparting a vinegar-acid taste to the fruit, that gives the well-known disagreeable dried fruit taste. Desiccated fruit is fresh fruit, and when cooked is superior to green fruit that has not been treated by the super-matureation process.

L. A. GOULD.

STATEMENT OF E. F. AIKEN.

To the Committee on the Award of Gold Medals:

GENTLEMEN: Having made application for the gold medal in the Sixth Department, I beg leave to offer the following reasons upon which I base my claim:

I claim the gold medal upon the most valuable industry represented in the Sixth Department—that of dried and preserved fruits—and for making the most valuable and meritorious display in the same, having upon exhibition twenty-one varieties of dried fruits, and twenty-six varieties of preserved fruits; a greater variety, and more in quantity, by several hundred pounds, than all other exhibitors combined, and receiving from a competent and discriminating committee five premiums in this department—more than any other two exhibitors—which is decisive evidence of the merit of my exhibit.

Beside the dried fruits exhibited under glass, I had upon exhibition several hundred pounds in uniform-sized packages, prepared for market, being pressed into the boxes in a solid form. I believe the business of drying fruit for market to be of the greatest prospective value to the State of any industry represented in this department. There is already a great and growing interest felt among our fruit growers in this subject; not only for drying for our home market, but for export, in time, by the ton and car load, to eastern markets.

I am now growing several thousand plum trees for the purpose of raising plums expressly to dry for market; the drying to be done in a house built for the purpose, as sun drying, or drying in the open air extensively, I consider impracticable.

If our agricultural committees would give to this industry that attention and award which its merits deserve, it would incite a greater interest among our fruit growers in this department of the business, which would induce many of them to enter into fruit drying extensively, thereby saving millions of dollars to our State annually.

The above is most respectfully submitted for your consideration.

ED. F. AIKEN.

SEVENTH DEPARTMENT.

STATEMENT OF J. C. DEVINE & BROTHER.

To Committee on Award of Gold Medal:

GENTLEMEN: In our department, we claim the merit of executing the finest and best pieces of sculpture in marble, which were exhibited at the State Fair of eighteen hundred and seventy-two.

First—That the exhibition of the same was attended with considerable cost and labor to us, our object being to have the fine arts of our State, as produced by hammer and chisel, fairly represented, and thus call for

all honorable competition. But, as your honorable committee will bear in mind, such works do not get the least encouragement in this country; but if the works exhibited by us came from Florence, or some other place of note in Europe, they would find a ready market on this coast. For the reason that fine work is not encouraged here, we have to discontinue this branch of our trade, and follow the rough and ready style of work most generally done in this country, as it is the most remunerative; and we hope the committee will take this thing into consideration.

Second—The works exhibited by us consisted of two mantel-pieces of Vermont marble, with sculptured figures of Italian statuary marble, and one of Italian mock statuary marble, and two Gothic monuments, somewhat relieved on top by the composite order and two scrolls of Italian marble—one with a dove on top, with the morning glory entwined around the dove, which of itself is a masterpiece; the other has a sleeping baby on top, and is a true copy from nature, but in miniature size. It has cost us one hundred dollars to take these articles to the Pavilion and set them up, and take them down and set them up again in our wareroom. While the artist in painting can pack his works on a wagon at once easily, we have to take a dray nearly a day to do our hauling. Therefore, we claim the society should be a little more liberal in the marble department in regard to premiums.

Hoping, gentlemen, you will give our claim all due consideration, we most respectfully submit the above.

J. C. DEVINE & BROTHER.

STATEMENT OF GEO. G. W. MORGAN.

To the Committee on Gold Medals:

GENTLEMEN: In presenting my claim to the gold medal of the Seventh Department, for a design for a narrow gauge railroad and canal combined, I should hesitate greatly if I were not assured that your judgment will not be influenced by considerations that would operate on those of a lower standard of intelligence.

I admit my plan is "only an idea," but it is one which, if carried into practical operation, will do for California what the Erie Canal, of New York, has done for that State—convert millions of almost useless acres of our best lands into productive grain fields, give the farmer the cheapest possible transportation, convert desert wastes into populous cities, and, besides doing an infinite amount of good otherwise, make California the highway of nations to the northern coast, which, in future ages, will be developed to an extent that few at present living conceive of. True, it is "only an idea." Gallileo's, when he proclaimed the revolution of the earth around the sun, was no more; neither was Newton's theory of gravitation, deduced from seeing the apple fall; nor Franklin's, when he brought down the lightning from heaven, and proved its identity with electricity; nor Morse's, when he made the lightning speak man's messages to man in a language then to be invented, which is now familiar to thousands of telegraphers' ears, if not to mankind at large. The discovery of America by Columbus was the result of "only an idea."

Professor Agassiz said: "It only requires one man to conceive an idea, or demonstrate a scientific fact, when plenty of men will be found ready to carry it to a practicable and profitable result." The most gigantic fact in science, philosophy, or art, was at one time "only an idea." Surely, an idea that is susceptible of developing the resources of this State, adding countless millions of dollars to its productive industry, increasing its population to an infinite extent, and making our State one of the greatest in the Union, is deserving of more consideration at your hands than the mere successful elaboration or display of skill by some mechanic or manipulator of art.

Very respectfully yours,
GEO. G. W. MORGAN.

—

The *Sacramento Union* did me the honor to comment on my design, as follows:

"NARROW GAUGE RAILROAD AND CANAL COMBINED.

"Among the many interesting and valuable ideas eliminated at the late Fair was a very modest design by George G. W. Morgan, Secretary of the Reclamation Fund Commission of this city, for which a special premium was recommended.

"The idea consists of building a single track narrow gauge railroad alongside a canal. By this plan, small donkey engines, costing only about two thousand dollars or three thousand dollars, could be made to propel one or more canal boats at a rate of say four or five miles an hour, thus transporting grain, etc., at the lowest possible cost, not interfering with the banks more than at present by the horse-power; and should it be desired to run trains for passengers, the freight engines could be switched off at certain hours, and the line kept perfectly free therefor.

"The design contemplates a line for the down trains on one side of the canal and for the up trains on the other. While there is a central rail of iron with the bevel-wheel gearing, as on the Swiss lines, there are two outside wooden rails to take off a portion of the weight and preserve an equilibrium. Although no width of gauge has been determined upon, two feet, or at most two and a half, gauge would be all-sufficient. The Festinoag Railroad of North Wales is only twenty-three and a half inches wide, and has been working for about fifteen years with perfect success. This plan, if carried into execution, would reclaim our waste land, give our farmers the cheapest possible transportation for their produce, build up villages, towns, and cities, as the New York Erie Canal has done under the genius of DeWitt Clinton, afford an opening for millions to locate the now unproductive lands in our State, give employment to thousands of our mechanics, and generally promote the best interests of our State. It is a singular fact that since the opening of the Fair the last European mail brought to this city a copy of the celebrated English paper, *Engineering*, which shows that essentially the same plan is about to be adopted in Ireland. Thus affording another illustration that two ingenious minds were at work at the same moment thousands of miles apart endeavoring to solve the same problem."

STATEMENT OF A. HART.

To the Gold Medal Committee:

GENTLEMEN: The question of the bestowment of the gold medal for the most meritorious exhibition in the Seventh Department, at the late State Fair, being the only one left for my further consideration, I have thought it advisable to address the Board upon the subject, and to set before it such facts and arguments bearing upon the case as shall induce the Board to thoroughly consider my claims to the medal. It may be that in this way some compensation may yet be made for what I conceive to have been a very superficial and hasty examination by the judges of the comparative merits of the two rival landscapes at the Fair. I had brought, at great expense, my largest and best work, upon which I had expended many months of arduous and unremitting study and labor, and which had been pronounced by art critics and artists a masterpiece, and when I found that a painting quite unfinished in many respects had taken all the money premiums offered by the society for this branch, as well as for the best exhibition of paintings, you may readily conceive my astonishment at the verdict. I regret exceedingly that the two paintings could not have been placed side by side under an equal light.

And now, gentlemen, allow me to suggest a few of the reasons, involving, as they naturally do, a little art criticism, why I believe I am justly entitled to the gold medal for the most meritorious exhibition in the Seventh Department.

First—Were not mine the most complete and highly finished paintings exhibited? I claim that they were. Any painting, to be entitled to high rank as a work of art, must not only be finished in the sense that leaves nothing more to be added to its composition in the way of thoroughly elucidating the story intended to be told by the artist. It should tell the story at a glance. It should represent nature in a grand manner in her most beautiful and attractive forms and colors. If the painting be a landscape, you will remember that the greatest masters of their calling have made the study of and the painting of clouds a most effective and important part of their compositions. The principal lights should be so judiciously contrasted as materially to enhance the value of the darker portions of the work. Unity of effect and story are as important to the painter of an epic landscape, and certainly requires as much power in the originating mind of the artist who designs and paints it, as is involved in the writing of a drama. The highest type of all painting—of all art—is that which, comprehending all the qualities I have enumerated above, joins to them a careful finish of every detail, and which leaves on the mind of the beholder as unmistakable a sign of refined intelligence of the artist who produced it as it is possible to discern in any work of human agency. Upon what principle of criticism the judges could find the qualities I have mentioned as entitling Mr. Keith's landscapes to rank in any respect above mine, I am at a loss to discover. During thirty years of my life, earnestly and lovingly devoted to my art, and with an unflagging energy in the pursuit of all knowledge that can ennoble and elevate it, I have endeavored to advance its interests by every honorable means.

Thus far, gentlemen, I have argued in support of the position that I not only had the best portrait, but by far the best landscapes, in the Fair. And if so, why then assuredly the most meritorious exhibition in the Seventh Department, and entitled to the society's medal. One question more, touching the somewhat arbitrary standard fixed in the minds of the judges of the comparative value of portraits and landscapes as works of art, and I close. Mr. Keith, it was decided by the æsthetical judges, was entitled to the premium for best landscape; ergo, he was awarded also the premium of fifty dollars for the best exhibition of paintings! Also forty dollars additional for the best collection! And of course my portrait of the child ranked below the landscape exhibition. To this I would simply answer, that if to endow a head with such an appearance of life that the eye shall seem fairly to rival the brilliancy of nature, the lips seem ready to part in speech or laughter, and the whole so cunningly wrought by the skillful mind and hand of the artist as to seem instinct with the warm incarnation of humanity itself; if to do this be not the highest of all artistic attainments, then most certainly the greatest names emblazoned in the annals of ancient and modern art are unworthy of the places they occupy. It is somewhat singular no colored photograph could ever, or has, or ever can, come anywhere near the best work of the accomplished portrait painter from the life.

Finally, gentlemen, if the six oil paintings exhibited by me, which included my large picture of the "Last of the Mohicans" and a portrait, admitted to be masterly in every respect of its treatment, did not form the most meritorious exhibition, as it was generally conceded to be the most attractive one, and if it should not be so regarded by the Board, I should most certainly feel discouraged from ever again venturing into the field of such a competition.

With these few hastily written thoughts and suggestions respectfully submitted, I remain, gentlemen, your obedient servant,

ALFRED HART, Artist.

REPORT OF GOLD MEDAL COMMITTEE FOR 1872.

To the California State Board of Agriculture:

GENTLEMEN: We have the honor to report the result of our examination and conclusions, as follows:

We were not notified of our appointment until some days of the Fair had passed; but as soon as we could we held a meeting, and went through the building and examined carefully each and every exhibition. In order, then, to become acquainted with the especial merits claimed by each exhibitor, we invited written statements of the grounds upon which the merit was placed and the medal claimed, both for our own information and assistance, and the information of the people generally, who are interested. When the time set for these statements to be handed in arrived, we met at the office of the society in Sacramento and gave them all a careful reading and consideration, and thereupon made the following awards:

The medal in the First Department—live stock—having been awarded by another committee, we commenced with the

SECOND DEPARTMENT.—The medal in this department was awarded to Goodwin & West, of San Francisco, for the Goodwin pump.

THIRD DEPARTMENT—To Anna Gettz Lucas, of San Francisco, for wax fruits and flowers.

FOURTH DEPARTMENT—To Carlton Newman, of San Francisco, for home-made glassware.

FIFTH DEPARTMENT—To Robert Williamson, of Sacramento, for exhibition of vegetables.

SIXTH DEPARTMENT—To E. F. Aiken, of Sacramento, for exhibition of dried fruits.

SEVENTH DEPARTMENT—To Alfred Hart, of San Francisco, for paintings in oil.

All of which is respectfully submitted.

E. S. CARR,
S. J. FINNEY,
WARREN WASSON,
HORACE ADAMS,
E. KENYON.

REPORT OF CORRESPONDING SECRETARY,

AS MEMBER OF VISITING COMMITTEE.

As a member of the Visiting Committee of the State Agricultural Society we have commenced our annual rounds among the farmers, and as we go we shall take notes for the benefit of the readers of the press. Our associate and traveling companion is Colonel Coleman Younger, of Santa Clara, a member of the State Board of Agriculture. The Colonel being owner of one of the largest herds of thoroughbred Durham cattle in the State, and a good judge and ardent admirer of good stock of all kinds, the stock men may look for a visit from him at any time. If we venture any suggestions in these notes in regard to stock matters, the stock owners will remember that they are given in the interest of the general industry and in the kindest feelings, and we hope they will be received in the same spirit. Representing, as we do, the general agricultural interests, we shall speak freely of the practices of the farmers in the districts we travel through, and hope our observations may be of some value to those directly interested, as well as to the general reader.

OROVILLE AND VICINITY.

On Tuesday, June eleventh, we left Sacramento by rail and arrived in Oroville the same evening. The Colonel, having preceded us the day before, had taken time by the forelock and visited the farm of Joseph Glaucauf previous to our arrival. This farm is situated in the forks of the Feather River and the Honcut Creek, and contains fifteen hundred acres of as rich and valuable land as there is on the Honcut, where the land is famed for its almost unlimited fertility. The farm is generally level, and is dotted over by groves of magnificent old spreading black oaks, covered with a luxuriant dark-green foliage, hanging, like the foliage of the weeping willow, almost to the ground. Here and there is the bed of an ancient creek meandering through the place, and on either side are irregular rows of these same venerable and beautiful trees, spreading their arms over and furnishing grateful shade to the numerous bands of fine horses and herds of fat and beautiful cattle with which Mr. Glaucauf's farm is well stocked. Mr. Glaucauf has some five hundred acres of wheat and barley which must yield from thirty to fifty bushels per acre, and almost ready for the reaper. He has also fifty acres of alfalfa growing most luxuriantly, and with its dark green foliage presents a most beautiful sight and delightful contrast to the golden hues of the grain fields and lighter yellow of the wild oats pastures. Mr. Glaucauf is most favorably impressed with this grass and intends extending its cultivation.

HORTICULTURE.

On the twelfth, by invitation, we visited the place of James Birt, to see his horticultural operations. Mr. Birt has about one hundred and sixty acres lying within a mile of the town. Quite a large portion of this land is now rented to Chinamen for garden purposes, and pays an annual rental of twenty dollars, and the Chinamen make money at that.

A portion of the place is cultivated by Mr. Leggate, and brother-in-law of Mr. Birt. On this portion we saw a most excellent vegetable garden in a most excellent state of cultivation. The vegetables, too, were much more advanced than we anticipated. Tomatoes were full-grown and just ready to color. Mr. L.'s mode of cultivating the tomato is to trim all the leaves and branches off of the main stalk until about a foot high, and train each vine to a stake. The vines at this time are from four to five feet high, and all the branches are kept in close to the stake. The fruit under this mode of cultivation is exposed to the sun and ripens more rapidly, and the vines are said to be much more prolific. Mr. Birt has about five acres in various kinds of grapevines, and we have seen no place in the State where the grapes are so forward as in this vineyard. The Catawba are very nearly full grown, and the Los Angeles are as large as large sized peas. We also ate here the red astrachan apple, fully ripe. It is Mr. Birt's intention to work nearly his whole place into table and raisin grapes, and we have seen no place in the State so favorable for such an enterprise.

ORANGES AND LEMONS.

In the garden of Judge Sexton we saw orange and lemon trees loaded with fruit for the first time this year; while in the garden of Mr. Glaucauf, in town, stands an orange tree about twelve years old, that this year bore and ripened four hundred as fine oranges as we ever saw grown in Los Angeles. They are of the same variety. A tree on Bidwell's Bar, some six miles above Oroville, this year bore fifteen hundred oranges, as good as any grown anywhere. These are significant facts, and tree horticulturists in this vicinity, and indeed all over the State, should benefit by them.

VINEYARDS AND WINE.

Oroville is undoubtedly one of the most favorable localities in the foothills of the Sierras for the cultivation of the vine for wine purposes. T. Shaub, whose vineyard is some three miles above this place, and known as the White Rock Vineyard, has exhibited his wines at the State Fair a number of times, and has in every instance carried off some of the first premiums. By a very little inquiry we were told the names of some thirty persons within a radius of three or four miles of town who are more or less engaged in the cultivation of the vine, and who own in the aggregate some four hundred acres of vineyards; all, or very nearly all, bearing vines.

VINEYARDS DO NOT PAY.

Notwithstanding the natural advantages of location, soil, and climate, we are afraid that the cultivation of the grape and the making of wine has in every instance proved a pecuniary loss. A number who have made wines, bought casks to store them in, and who have devoted considerable time and money to the enterprise, are out the expense, and have no prospect of selling their wines to repay themselves. Upon inquiry as to the cause of this unfavorable state of affairs we learned:

First—That each individual producer has at great expense undertaken, without any very definite or correct information of the business, to make wine of the few grapes raised on his place, and in many instances these undertakings have proved failures, the grape juice becoming vinegar instead of wine, and even if good wine was the result, it cost more than it is worth.

Second—That the freight asked by the railroads to transport the wine to San Francisco or other markets is so high that the producer would have but little left, even could he sell at good prices, after paying these.

Third—On account of the government tax and unjust restrictions it will not pay to distill the wines or grapes into brandy

Under such circumstances, the wine growers about Oroville are about discouraged, and some of them have commenced digging up their vines to make room for some crop that promises immediate and certain remuneration. Against such a course we would make a vigorous protest, and would advise all interested to join their interests, so far as wine making is concerned, something on the plan of the cheese manufacturing establishments of some of the Middle and Eastern Atlantic States. Thus two difficulties will be overcome—expense of production will be reduced, and a uniform quality of wine will be produced, adding value to the product. Having a large quantity of wine under a single ownership to be removed to market, better terms can be made with the railroads, and, it being of a better quality, a better price can be secured for the same.

Having remained in Oroville a part of one day—we could have spent three days profitably among the farmers in that vicinity—we left at one P. M. of the twelfth instant, per the Chico stage, for the farm of

MOSES WICK.

Mr. Wick's place is on the direct road from Oroville to Chico, ten miles from the latter place and fifteen from the former. Before the completion of the railroad from Marysville to Chico, a large portion of the travel between the central and northern portions of the State, and the Oregon travel, passed over this road, when Wick's place was an important stopping place, and his hotel made him a great deal of money, and he paid little attention to farming, except to cut hay for the stock of his customers. The hotel business having fallen off very much, Mr. Wick has turned his attention to the improvement and stocking his land, of which he has something over a thousand acres—a large portion of it being very rich valley land, and well watered.

THOROUGHBRED STOCK.

In eighteen hundred and seventy-one, Mr. Wick imported from Ohio and Illinois twenty-seven head of thoroughbred short-horned Durham cattle. At the time of the last State Fair, although Mr. Wick's cattle were in poor condition, and although he did not expect to obtain any premiums offered on that occasion, like a true Californian, who has the good reputation of his State at heart, he exhibited some eight head of bulls and cows, and his cattle attracted a good deal of attention from good judges. Since that time they have improved in condition very much, and the younger bulls and heifers have come out A No. 1. Though he has sold a number of head at good prices, the natural increase has more than kept pace with his sales, and his herd now numbers thirty-five head, including calves—fifteen head of breeding cows, some five or six head of bulls two years old and over, and the balance bulls and heifers of less age. Those who want to buy good bulls would do well to call on Mr. Wick.

He intends to exhibit a large number of his stock this Fall at the State Fair, and we give his competitors notice that they will have to show mighty good stock, or they will come out of the hands of the committee second best.

TO CHICO.

Having enjoyed the bounteous hospitality of Mr. Wick, we accepted an invitation to ride with him to Chico the next morning. On this route we passed through thousands of acres of high plain lands, from which large flocks of sheep had just been driven higher up in the mountains for fresher and better pasture. The land is nearly all well adapted to the cultivation of the vine, and, we have no doubt, will some day be covered with flourishing vineyards, and supporting a dense population of industrious people.

As we approached Chico, we began to ride through large grain fields—soon to be ready for the harvest. The grain is well headed and the berry plump, but the straw is somewhat uneven on the ground and not very heavy—showing plainly the effects of the past wet Winter.

The grain crop of Butte County, we are assured by the best judges, will not be as heavy this as last year; still there will be a very good crop, and the farmers are all in the best of spirits. Having had a better crop last year than any other county in the State, and having obtained good prices, they do not feel like complaining now, and they certainly have no reason to do so.

GENERAL BIDWELL'S FARM.

Having brushed off the dust and eaten dinner at the Union Hotel, we accepted an invitation from General Bidwell to take a ride over his magnificent farm. This farm has been described so often by correspondents of the various newspapers of the State, that we shall only speak of some of the operations and enterprises that are being pushed forward on the place, very briefly.

The farm consists of twenty thousand acres, all of which is under a good fence, and pretty well cut up into fields of from one to two thousand acres each, by equal division fences. Perhaps there is no other one individual in the State cultivating so many acres, engaged so extensively in the cultivation of so many varieties of products. General Bidwell is, in every sense of the word, a general farmer. He does not, like many other extensive California producers, bend all his energies and means to the production of a single crop—wheat, for instance—or to the raising of cattle, or sheep, or horses. He raises almost everything that is cultivated in California, and his operations in each are on a large scale.

THE VINEYARD—RAISINS.

The General being strictly a temperance man does not propose to cultivate the grape for wine or brandy; this he will leave for others. Still he has some seventy-five thousand vines on the high rolling land at the upper end of his place, and proposes to keep on planting until his vineyard will cover from one to two thousand acres. The land is well adapted to the vine, and is of but very little account for any other purpose without irrigation. The varieties of grapes cultivated have been selected with a view to the production of raisins, a large proportion being the Muscat of Alexandria. It is his intention to enter very extensively into raisin culture, and to insure success, the General expects to visit Spain this Fall and gather all the necessary practical information, and import an experienced raisin producer to take charge of this special department. The enterprise is a very important one, and we hope and trust it will be made a success. California ought, and we believe will, at no distant day, supply the whole United States with raisins.

WHEAT AND BARLEY.

There are about two thousand acres of wheat on the farm, and one thousand acres of barley and oats. Of all the wheat we have seen in our travels, that growing on this farm is the cleanest of weeds, and the grain stands the evenest on the ground. This is the result of the perfect system of cultivation adopted by the foreman, Mr. Cochran. All the wheat land is plowed twice—once shallow in the early Winter, when all volunteer weeds or grain have commenced to grow, and then again deep when what weed seed and grain had not previously sprouted has taken another start. The last time plowing the plows are gauged so that they run at an equal depth all the time, and great pains are taken that every inch of land is thoroughly plowed. In one field of one thousand acres the wheat heads seemed to be on an exact plane with each other, and the yield promises to be not much less than forty bushels to the acre, though wheat has been grown on this same land now seventeen years in succession. We name this latter fact to show the strength of the soil, but more particularly to condemn the practice. The General assured us that he would not defend this kind of farming, and that he intended to continue it no longer. He would sow this old land in alfalfa, and thus make it yield a larger profit than it has been doing from wheat, and put an adjoining field which had never been plowed into grain, and thus with the same labor increase the production all around.

A BIG YIELD.

We saw one piece of twelve acres of meadow which had just been mowed the second time this year. The first mowing in April it yielded forty-two tons, and the last, fifty; thus making ninety-two tons of good alfalfa hay from twelve acres of land! It will probably be mown twice more, and may yield an equal amount. If irrigated it would undoubtedly yield more, thus making over fifteen tons of hay to the acre in one season.

MISCELLANEOUS PRODUCTS.

On this farm is one of the most extra size vegetable gardens in the northern portion of the State, in which are growing beets, carrots, parsnips, turnips, corn, potatoes, and nearly everything that California is capable of producing in that line, in great abundance and perfection—not only for the supply of the family and farm hands, but for sale in the town and mining towns and camps of the surrounding mountains. Fruit of every description and in quantity, is also produced generally; but this season the crop is very light on account of the late frosts. A large dairy of some one hundred cows, making large quantities of butter for home consumption and for sale, and furnishing a part of the food for the swine, of which there is some four hundred head on the place, constitutes a separate establishment. A fine nursery is also carried on, under the supervision of an experienced nurseryman, supplying all the shade and forest trees for the planting in the orchards and on the lines of fields and streets. Shops and work-houses, in which are made and repaired nearly all the agricultural tools and machinery used on the place, form also a part of the farm establishment.

Indeed, we could continue to enumerate the facilities and conveniences connected with this farm, but space will not allow, and we will dismiss this notice by saying that there seems to be

ONE THING LACKING

In the way of stock. Col. Younger says—but I only partly agree with him—this one thing is, a *good herd of thoroughbred Durham cattle.* No man in the State is better fixed for breeding good cattle than General Bidwell. He should give California the distinction of having the best breed in the United States. With this remark we will leave Bidwell's and transport the reader to the

FARM OF THE WALSH ESTATE,

Where, in company with Senator Kent of Nevada, and Assemblyman De Haven, we went on Friday. This farm contains also twenty thousand acres, all under fence, and about three thousand acres under cultivation in grain this year. It is now owned and managed by Mrs. Chambers, the sister of Mrs. Walsh, and her two sons, Joseph and Charles. Here we were also most kindly received and hospitably treated. Here the Colonel was perfectly at home. He found in Mrs. Chambers an old neighbor from St. Louis; and what, as we have before hinted, pleased him a "heap," a fine herd of

SHORT-HORNED CATTLE.

As is well known, Mr. Walsh was one of the first importers of this stock into the State; and we think we may safely say that no better blooded cattle have ever found their way into the State than were brought here in an early day by R. J. Walsh. Without any disparagement to other importations, or herds descended from other importations, we think we can truly say that no other cattle have been a greater credit to the State, or have done more to convince our people of the many advantages of raising good blooded stock, than this same Walsh herd. Go where you will in California, where thoroughbred and graded cattle are to be found in any number, and you will find their descendants holding a high position.

In consequence of the death of Mr. Walsh, and some difficulty in settling up the estate, these cattle have not been exhibited at our State Fair for a number of years back; but they will again make their appearance there this year, and we predict, that although they will meet with a much stronger competition than ever before—with opponents that are worthy of their metal—they will still maintain a high position of honor and make a desperate, and perhaps a successful, struggle for some of the higher premiums and sweepstakes. Though a very large number have been sold, this thoroughbred herd now counts fifteen head of breeding cows, and twenty-two head of young heifers and bulls.

Of graded cattle, they certainly have the finest we ever saw, and their herd consists of one thousand four hundred head. They will also exhibit some of these cattle at the State Fair, to show what graded cattle are for beef and the dairy. Mr. Kent, who knows of what he speaks, says there is no other breed of cattle in the State where the four-year-old steers weigh as much on an average as do the beef steers from this herd, into from one hundred and fifty to two hundred pounds. This is an item for our beef raisers, and they may profit by it. Having spent the day and night at Mrs. Chambers', we returned to Chico and spent Saturday among the farmers as we met them in town doing their week's business. If one wants to see evidences of agricultural prosperity, let him stop in Chico on Saturday at this time of year.

SONOMA AND MARIN.

Having determined to spend a week among the different classes of agriculturists of the Counties of Sonoma and Marin, Tuesday morning, June twenty-sixth, found us at the railroad depot in Petaluma. Upon inquiry at the depot, we were informed that the American Hotel, Main street, kept by Talbot & Bowles, was the best hotel in town. We stepped into the 'bus bearing that name, and were soon at our home, comfortably fixed in one of the best rooms in the house. This being done, and dinner being over, we started out to find members of the Board of Directors of the local agricultural society, for consultation as to the localities and industries to be visited, and routes to be taken. The first man we met was I. G. Wickersham, ex-President of the society, who gave us a hearty welcome, and very promptly and generously proposed to spend his time, and with his team, to convey us to such points in the district as we might wish to visit. President Ellsworth and Secretary Grover were absent, but we were soon called on by Vice President Denman and Director Meecham, and arrangements were completed by which we were to take a seat in the private carriage of the ex-President for a visit to some of the representative dairies of the two counties the next morning.

As expected, on that morning we met our traveling companion, Colonel Younger, who had spent Tuesday morning among some of the stock men in the vicinity. The Colonel accepted an invitation to ride with Director Meecham, and thus accompanied and provided for, we were soon on our road for the dairy of Captain O. Allen & Son, which we were assured was one of the best arranged and managed in the State, if not in the United States. This dairy is situated in Marin County, in a westerly direction from Petaluma, about eighteen miles. It is six miles from the ocean, and about two and a half miles from the head of Tomales Bay.

GENERAL INFORMATION.

As we rode along, we kept up a chat with our agreeable and well-informed companion, and our readers may be interested in what we saw and learned, or, as Horace would say, in "what I know about farming" in Sonoma and Marin Counties.

The entire road from Petaluma to Captain Allen's dairy is through a rough, hilly country, presenting the appearance, to a casual observer, of worthless barren waste land. Now we wind one way around the steep, rocky side of a mountain; now descend into and across a deep cañon, and follow up the rocky bank of a mountain rivulet; but all the way the road is fenced, and nearly all the way we are in sight of well-conditioned and well-cared-for herds of dairy cows, feeding, as we have read of of old, "on a thousand hills." And every now and then we pass a thrifty-looking dairy establishment, with rows of bright tin pans glistening in the sun where they have been put out to dry.

Notwithstanding the barren and worthless appearance of this hilly region, every foot of land is under fence and fully occupied, and is valued by the owners at from twenty-five to forty dollars an acre, and we are assured is assessed at those figures under the rule of "full cash value," adopted by our Legislature for the guidance of our Assessors. Sonoma and Marin are known throughout the State as the dairy counties of the Pacific coast, and the fame of this dairy region has spread far and wide through the best dairy countries of Europe.

SWISS DAIRYMEN.

Especially have the sturdy Swiss dairymasters been attracted from their Alpine homes by the superior advantages offered by our Coast Range districts for carrying on their favorite rural occupations. It is said that already fully two thirds of all the dairy business of Marin and Sonoma Counties is in the hands of the Swiss, either as renters or owners. These people seem to be peculiarly adapted to this kind of business, as the Chinese, Italians, and Portuguese are to market gardening, and are said to be a very peaceable, industrious, and thriving people, and make the best of citizens. This is proved by the fact that their first introduction into this country as dairymen was as late as about eighteen hundred and sixty and eighteen hundred and sixty-two, and some of those who came here at that time with no money or capital, except their industry and knowledge of the business, are now paying taxes on property to the value of from two to three hundred thousand dollars, and nearly all seem to be on the sure road to wealth.

One of the peculiarities of these people is their disposition to assist each other. This disposition takes the form of a practical mutual aid system. A poor boy comes to the country and begins by working in one of the dairies by the month; if he proves himself industrious, honest, and saving of his wages, in the course of two or three years he can command sufficient capital to rent and carry on the largest dairies in the county. His countrymen, who are able, take a practical interest in him, and by small loans for a long time, and at small interest, he is soon in possession of funds to make the first payment of fifty per cent of the rent money of a good dairy of cows. The second and third payments he is able to meet from the business itself, and the poor boy is in a very short time one of the stable men of his neighborhood, and is known among the bankers of the town by his stated and increasing deposits. Soon, instead of money, he deposits his title papers, and is the owner in fee simple of a section or two of Uncle Sam's domain, and a citizen of his adopted country. The history of this young Swiss is the short but true history of many of that country now in Marin and Sonoma Counties. And it foretells the state of the dairy business there in the not distant future. The large dairies will be sold out and divided into smaller ones. The American owners will give place to Swiss owners, and the products of the business will be greatly increased and the prices lessened.

MODE OF RENTING.

Some rent their dairies on shares, but more generally it is the custom now, to rent for money rent. If on shares, the owner finds the land, cows, tools, houses, and all the necessary conveniences, except the teams and wagons, and receives one half the gross product in cash. The custom among those who rent for cash is to obtain from twenty-five dollars to thirty-five dollars per cow per year—one half down in advance, and the other half in equal payments, say in July or October, or such other times as may be agreed upon. In the case of cash rent the owner furnishes the same as above stated when the rent is on shares.

The average net profits of the lessee is said to be about thirty dollars for each cow per year. Thus we have a key to the profits of the dairy business. The net profits per year per cow, on an average, sixty dollars. This is pretty good, considering that the average price for common dairy cows is about forty dollars. It must be remembered, however, that a necessary amount of land to support the cows goes with them. Experience proves that it requires about seven acres to the cow of land covered only with the native wild grasses. Or, to support a dairy of one hundred cows, seven hundred acres of land is required. Heretofore very little hay has been cut or fed by the dairymen; but they are now generally convinced that a change in this respect will not only be economical, but that the continued prosperity of the business requires it. Of this we are fully convinced, and the most prudent and prosperous dairymen will be the first to introduce the Winter feeding of dairy cows.

NATIVE AND ARTIFICIAL GRASSES.

These coast counties have more rain generally than the interior counties, and they also generally have fogs through the Summer season very frequently, and hence the native grasses are kept green and in growing condition a greater portion of the year here than in the interior. These facts, together with a cooler Summer, but more equal climate the year through, give to this county its natural advantages as a dairy county. The nearer you approach the seacoast we noticed that a larger portion of the native grasses are perennial, the very nutritious bunch grass becoming more prevalent. But the dairymen have been very generally experimenting with artificial grasses, with a view to their introduction, if any are found adapted to the country. Timothy, redtop, blue grass, alfalfa, mesquite, and other varieties have been tried. None but the two latter have met with much success. It seems very probable that both the alfalfa and mesquite will be gradually introduced, and double, and perhaps quadruple, the capacity of the county for the dairy business. Both have been proved perennial even to the tops of the highest hills, and both have been cut for hay, yielding as high as three tons per acre to the cutting. Both are found doing well and growing luxuriantly, presenting a beautiful green, in contrast to the yellow color of all the native grasses at this time.

CAPTAIN ALLEN'S PLACE.

We have enjoyed our ride immensely, and obtained a fund of information, and now, almost before we had thought of it, we emerge from a winding cañon, and behold, across a small valley, on the brow of an oblong hill, extending across the entrance of another cañon, which leads off in another direction, the beautiful cottage residence, dairy house, carriage house, barn, and other outbuildings of Captain Allen, all painted white, and relieved and shaded with the deep green foliage of the locust, the native walnut, and fruit trees of various kinds, and festooned with the climbing rose, passion flower, and other climbing vines. The first view presents to the mind a picture of prosperity, of comfort, of home—a country home in all its simplicity and rural beauty.

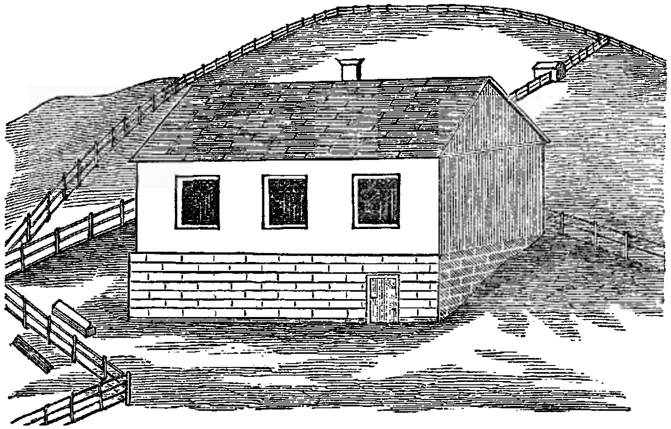
CAPTAIN O. ALLEN.

Having been introduced to Captain Allen, we will in turn introduce our readers. You see before you, a hale, hearty old gentleman of about sixty-five years; a countenance that beams with kindness, benevolence, and intelligence; a manner that at once grasps you by the hand and steals your heart, and makes you feel at home and at ease. Every inch a practical man and thorough mechanic. System is written in every line of his face and in every action. Nor is he unknown to fame, being the inventor and patentee of many useful and labor-saving tools and machines. Among these we may mention the whale gun and bomb-harpoon, now universally used by whalers the world over, and which added five per cent to the value of the whales that fill the briny deep. He came to California in eighteen hundred and forty-nine, in the bark May Flower, which brought out the stern-wheel steamer Lawrence—one of the first steamers that plied on the Sacramento and San Joaquin Rivers. He put this steamer together, and launched her at the place known as the New York of the Pacific. From these circumstances the title "Captain" attached to him, and, as he says, he has never been able to "shake it off." He has seen and passed the ups and downs of California life, and seventeen years ago, after having originated, located, built, and set to work the Pioneer Paper Mill of the Pacific coast, on Paper Mill Creek, in Marin County, in consequence of placing too much confidence in his fellow-men, he found himself penniless, with a wife and two small sons to support. Right here and then he started the dairy business, and from that day to the present, he has followed it up, with at least tolerable success. He now owns two thousand and fourteen acres of land in one body where he lives, valued at forty dollars per acre; has it stocked with six hundred head of cattle, and is milking two hundred and twenty-five dairy cows, and turns out from thirty-eight thousand to forty thousand pounds of butter a year; has at times milked as high as three hundred and fifty cows, and made seventy-five thousand pounds of butter a year; has sold no butter this year less than thirty cents a pound—when he cannot get that price, he proposes to pack it.

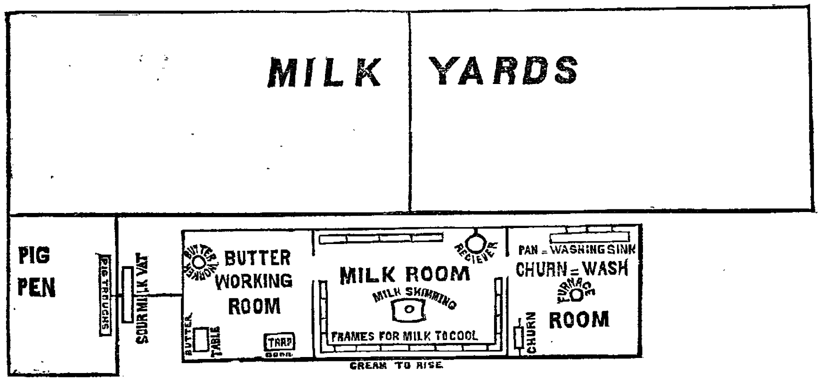
With this introduction and comments on business, we will accompany his son, Charles Allen, into the dairy house and talk of the

PRACTICAL WORKINGS OF THE DAIRY.

The accompanying cuts, which are prepared in a rough manner from memory, will serve to give the reader a birds-eye view of the immediate dairy establishment. Let us premise by saying that every building about the place, and every cow-yard and pig-pen, is abundantly supplied with cold spring water, conducted through lead pipe from a living spring over six hundred perpendicular feet above the highest building on the place, and nearly a mile away, on the side of a hill or mountain. The center of the milking yards is located on the apex of a gradually sloping hill, a fence dividing the yards, so as to have a less number of cows in each. The floor of the yards being a natural granite rock, can never be muddy, and sloping either way, is always dry and clean. In the small house, on a line with the division fence, is a milk receiver, into which the milkers from either yard pour their milk as fast as their buckets are filled. As the milk is poured into this receiver, it all passes through a strainer, and then through a conducting pipe into the milk house, and into another receiver, from which it is drawn through a faucet into a bucket, which is provided with another strainer. From this bucket it is poured into the pans, which have already been arranged on the racks around the outer edge of the milk room. By this arrangement, it will be seen that there is no occasion for the milkers to go into the milk house with their dirty feet, and every room in it is kept as clean as a parlor. In the center of the milk room is the milk-skimming table, in the center of which is a funnel to receive the sour milk, and from the bottom of this funnel is a lead pipe bent in the form of the letter ∽ and leading some hundred feet down the hill to the sour milk vats, and from these it is drawn out into the pig troughs as occasion requires. The milk always resting in the lower bend of the letter ∽, prevents the smell from the sour milk vats coming into the milk room. The cream is removed and turned into the churn, which is simply a square box, suspended and revolving upon an axle fastened to the heads, but not passing through the churn. This churn is run by a horse upon an endless chain horse-power in the basement. Upon the partition near the churn may be seen three thumb-springs, one connected by a wire with a bell below, and is pulled to ring the bell to start or stop the horse. One is connected by a cord with an upright cylinder on the horse-power, on which is ingeniously fastened a rawhide riding whip, so situated, that by pulling the thumb-spring the whip will hit the horse, in case he does not start at the ringing of the bell. The other thumb-spring connects with a brake to stop the horse-power and churn in case the horse does not heed the stopping-bell, and to prevent his starting when taking up the butter. So that the labor and time of a driver is saved, and the butter maker in the churn room has entire control of the power and churn machinery.



The churning completed the butter is removed to the butter room and placed upon the butter worker. This is an invention of Captain Allen's, and consists, as may be seen in the cut, of a round table with one leg, the table leaf inclining at a moderate angle with the leg, and containing a groove around the edge on the upper surface, so as to lead any fluid to the discharging spout. Above this stationary table, about two or three inches, is another table leaf of a little less diameter, resting upon an upright axle or leg so as at all times to keep the same incline as the lower one, and so supported that it may be made to turn upon its axis or upright support. To complete the machine a lever is suspended with a universal joint in such a position that it may be brought in contact with the upper surface of the revolving table at every point. The center of this lever is flat shaped like a two edged knife.



The butter to be worked is placed on the revolving table and cut and pressed and worked, being kept in any desired position under the lever by turning the table, and being made to assume any desired form by the motion of the lever itself. The buttermilk in the meantime falls from the upper table to the lower, and is conducted into a vessel standing under the discharging spout.

When the buttermilk is sufficiently worked out and salt thoroughly mixed in, the butter is cut into rolls of a proper size for molding into two-pound hexagon-shaped rolls. This is done by a butter molder, also the invention of Captain Allen. It consists of a pair of crooked tongs something in the shape of the tongs used to handle ice with—the molds being divided into halves, and one half being attached to each prong of the tongs, in such a manner that the butter may be clasped and firmly pressed in shape. This being done the tongs are opened and the molded roll is deposited in another half mold of equally the same size and form, which has been laid on the cooling table, covered with a wet cloth cut in proper shape and size to wrap the roll of butter in. The cloth is then brought over the butter in proper shape and the other half mold is placed on to keep the roll in proper shape until hardened by cooling. These rolls are then set upon end and stamped with the letter A, the trade mark by which the butter is known and by which it is sold. Butter with this brand brings the highest price and always finds eager customers.

GENERAL REMARKS.

There are many little things connected with this establishment which go to make up a perfect whole, but which in mere notes we could not mention. We recommend all those who are in the dairy business to visit and profit by it, and those who contemplate embarking in the business cannot spend their time and money better than to visit Captain Allen's dairy, if they had to travel a thousand miles and spend a month's time. We also visited a number of other dairies, and among them is that of L. W. Walker, who also has a fine establishment, but we have no space to describe them.

IMPROVING DAIRY STOCK.

We are glad to be able to state that all the best dairymen recognize the importance of improving their dairy cattle by the use of thoroughbred bulls. As a general thing we find they have used the short-horned Durham breed, and mostly give it the preference for size, disposition, and milking properties. Those few who have used the Ayreshires are very partial to this breed, and have no desire to change. Others who have had the Devons, consider them well adapted to the hilly country, and among the best of milkers.

It is so uncommon to have poor crops in Sonoma County that every farmer we met seemed to feel called upon to apologize, not only for the appearance of his own grain, but for that of the general grain crop of the county. As we have before remarked, the coast counties are generally favored with a good complement of rain each Winter, and the fogs of the Summer insure a good crop of the cereals. The past Winter, however, brought so much and so constant rain during the usual time of sowing, that all farming operations were suspended until very late in the season. The consequence was that the grain was generally sown late, and the ground was not in very good condition. The usual late rains failing, and the accustomed fogs being suspended this season, the cereals and grass are unusually light. But no other people in the State are in a better condition to meet the consequences of light crops than those of Sonoma County. And while they apologize, they do not complain. In fact, they seem as well satisfied with their lot and location as any people we have met in the State.

PETALUMA.

This town is, of course, to some extent, feeling in advance the effects of a comparative failure of crops in the county; but a more gallant, enterprising, generous-hearted people we have not met in all our travels than the people of Petaluma. Nor have we met anywhere a more wide-awake and determined set of men controlling the business and destinies of a District Agricultural Society than those composing the management of the Sonoma and Marin Society, located at this place. Already are they busy in making preparations for the annual Fair, to come off in September. Already are many of the stalls in the Fair ground occupied with young horses in training for trials of speed to be had at the Fair.

SENECA DANIELS,

That successful stock breeder, both in the line of horned cattle and horses, has fifteen colts, all the get of his celebrated stallion McLellan, on the grounds, speeding for the District and State Fairs.

Mr. Daniels has now seventy colts between one and six years old, sired by this favorite horse, and, if we are not mistaken, some of them will make a record worthy of their sire. He has six thoroughbred mares, the dams of a number of his most promising colts.

DEVON CATTLE.

At the residence of Mr. Daniels we had the pleasure of seeing his herd of beautiful Devon cattle. This herd consists of twenty-five cows and calves, all one color—a deep, bright red. For easy-keeping qualities, symmetry of form, and desirableness of color, this breed of cattle are not excelled by any other. In Mr. Daniels' opinion, they are, for general purposes, superior to all others. Mr. Daniels had just sold his last two bulls—one a three-year-old and one a yearling. He will import others this Summer to supply their places. He has also a number of very fine bull calves.

HENNERY.

While walking over the rolling hills, of which, in part, Mr. D.'s valuable home farm consists, we came upon one of the most extensive and best planned and managed henneries it has ever been our lot to behold in California, or any other State. It might very appropriately be termed a chicken village. It was located in a ravine, through which was a small stream running, supported by living water. The surrounding hills protect it from the prevailing winds. The village consisted of some three or four small board houses, about twelve by fourteen feet square. In one end of each of these houses were the nests, and in the other the roosts for the large hens. These houses were situated at a considerable distance, say twenty rods apart. One house of about the same size was the store room for the chicken-feed, and a work shop for the poultry master. Scattered over a space of four or five acres, and extending up the sides of the hills were one hundred and fifty coops, each one containing a hen, the mother of a brood of chickens or turkeys.

The prettiest sight of all were the young chickens and turkeys, from one thousand five hundred to two thousand, all the way from a quarter to half grown, running in droves all over the country for a mile and a half in circumference, to the very summits of the surrounding hills, catching the unlucky flies and grasshoppers that happened to come that way. Mr. D. says this chicken business is the best paying enterprise he has engaged in. He started it to supply his table with meat and eggs, but it had grown away beyond the requirements of his own table, and now makes no small figure in the annual income of his farm. The chickens, old and young, are all healthy, and in a thriving condition, and by careful management, keeping the coops at a good distance apart and clean, and supplied with plenty of fresh water and good food, they are kept so from year to year.

AMONG THE WINE GROWERS.

Sonoma Valley is one of the first localities in the State in which the vine was planted, and is justly celebrated the world over, for the superior quality of its wines and brandies. To visit this valley, its vineyards and wine cellars, was therefore one of the principal objects of the Visiting Committee in their travels through this portion of the State. This fact was no sooner known to the Board of Directors of the Sonoma and Marin Agricultural Society than provision was made for our conveyance to the desired locality, and Treasurer F. W. Longee and citizen G. Warner volunteered to accompany us. A pleasant ride of about three hours, in an easy carriage, over a spur of the Coast Range, that divides the Petaluma from the Sonoma Valley, and, at the same time, serves as a barrier to the coast fogs, found us at the palatial residence of J. R. Snyder. This residence is situated on the east of the valley, on the brow of an oval hill, at an elevation which commands a delightful view of the rich flat lands of the valley below. The ever present light green of the vineyards through which you ride, and which here everywhere abound, the cropping out of volcanic ledges here and there as you wind your way up the elevation, the massive walls of the wine cellar, seen through the dark green foliage of the live oak, and the lofty broken peaks of the Coast Range in the back ground, give to the location an air of Alpine beauty and grandeur. As you approach the residence you seem almost to hear within its massive walls the Major's voice as he sings—

> "The ruby dew that 'stills
> Upon Val d'Arnois hills,
> Touching the sense with odor so divine
> That not the violet,
> Its lips with morning wet,
> Utters such sweetness from her little shrine.
> When I drink of it I rise
> O'er the hill that makes all poets wise;
> And in my voice and in my song
> Grow so sweet and grow so strong,
> I challenge Phœbus with his Delphic eyes!
> Give me, then, from a golden measure,
> The ruby that is my treasure, my treasure!"

We were temporarily disappointed in finding that the Major was not at home. But a few minutes elapsed, however, when he and his daughter drove up and extended to us a cordial reception, in that easy and hospitable manner for which the old California pioneers are so eminently distinguished, and which places one so completely at ease. A walk through the vineyard shows that the location has been selected with admirable judgment. The soil is of the best for wine purposes, being to a great extent composed of the wash and debris of the surrounding hills, thrown up evidently by volcanic eruptions. Being sheltered from the fogs of the coast, and yet so near the sea, the climate is equable and well calculated for ripening the grape in the best possible manner to make a light and delicate wine. We next were shown the cellar, and invited to sample the wines themselves. Here we found samples of each year's vintage since eighteen hundred and sixty-six. We will not attempt here to give an opinion as to their quality. Suffice it to say, that the Major intends placing samples on exhibition at the Wine Growers' Association, to be held in connection with the State Fair, and we think he may do so without fear of an unfavorable result. The Major is wide awake to whatever may benefit this great industry, to whatever may improve our wines and introduce them into general use, instead of the alcoholic and poisonous mixtures heretofore so extensively imported to this country. He is now engaged in testing the wines of the different vineyards in Sonoma County, to ascertain their percentage of alcohol. His cellar contains from thirty-five thousand to forty thousand gallons of wine, mostly of the vintage of eighteen hundred and seventy and eighteen hundred and seventy-one. We spent here a most agreeable night, and after breakfast next morning the Major's carriage was at the door ready to give us a turn through the valley. The first place we visited was the

BUENA VISTA VINICULTURIST ASSOCIATION.

Learning that by the rules of this association the Superintendent could not admit any one into the cellar without permit from the President, Judge O. H. Pratt, we had taken the precaution to be fully armed and equipped with the necessary papers. We were politely met by Messrs. Grotham and Kitz, the cellar master and champagne maker, in charge, and shown the entire establishment; but as the *Rural* has lately given a full and very correct description of the same, we shall omit particulars. The association has on their place five hundred and forty acres of bearing vines. They have sold nearly all their wine, except the vintage of eighteen hundred and seventy-one—samples only of previous vintages since eighteen hundred and sixty-six having been retained. In eighteen hundred and seventy-one they made one hundred and forty-two thousand gallons of wine, and five thousand gallons of brandy. They turn out about five thousand bottles of champagne each month. There are at this time about thirty thousand bottles in the racks. Each bottle is jarred by hand each day while in the rack, and the average time of setting is two and a half months. We went through the entire establishment, and were very politely shown every process, and listened to a full description of the same by Mr. Kitz. Our traveling companion, Colonel Younger, being more of a cattle than wine man, and having been told that it was almost impossible for one to go through so extensive an establishment and come out perfectly straight, faltered on the way and awaited our return in the outer room. We noticed, however, when the sparkling champagne was brought on he seemed to appreciate good wine as well as any one; so much so that the Major could not for-bear relating the anecdote of the Piker, who having indulged on a similar occasion, confidentially remarked to a friend, "This is the best way to eat grapes I ever knew, you get so much grapes in so small a compass."

O. W. CRAIG.

We next visited this gentleman's place. He has a vineyard of about twenty-eight thousand vines; buys grapes from neighbors, and makes on an average from twenty-five to thirty thousand gallons of wine a year; has on hand samples of wines since eighteen hundred and sixty-seven; is also extensively engaged in making brandy; uses Schleifer's patent still, and thinks it has many advantages over other kinds. From the quality of the brandy tasted, we conclude that either the still is good or Mr. Craig understands his business—perhaps both; also, that the material from which it is made must be superior.

We were next driven to the farm of our old Sacramento friend,

LEONARD GOSS,

Who, with his amiable lady, gave us a cordial greeting, and did not forget the wants of the inner man. Mr. Goss has a beautiful and valuable farm of three hundred and twenty acres; is engaged in general farming, including vine growing and wine making; has seventy-five acres in vines just coming into bearing; made his first wine in eighteen hundred and seventy-one—ten thousand gallons; takes to country life naturally, and says he is happy and contented.

On up the valley we went, Mr. Goss increasing our party, to the place of

WILLIAM M'PHERSON HILL,

One of the pioneer horticulturists and farmers of Sonoma Valley and the State. Mr. Hill was to Sonoma what A. P. Smith was to Sacramento. As early as eighteen hundred and fifty-two he imported fruit trees of various kinds, and set out an orchard. In eighteen hundred and sixty-six his peach trees bore quite freely, and he sold peaches at nine dollars per dozen, in quantities. From two hundred peach trees planted in eighteen hundred and fifty-two, he gathered, in eighteen hundred and fifty-seven, thirty-seven thousand pounds of peaches, which he sold as high as one dollar and twenty-five cents per pound. From two cherry trees planted in eighteen hundred and fifty-two, he realized in eighteen hundred and fifty-five eighty-nine dollars per tree for cherries sold. Of these two trees one died this season, and the other is still alive. Mr. Hill is also engaged in the same business. He has seventy-five acres in vines, mostly of valuable foreign varieties; prizes the Zinfindel very highly for wine; has samples of wine on hand of each year since eighteen hundred and sixty-seven; Winter of eighteen hundred and seventy-one, ten thousand gallons.

On our trip through the valley we passed many other valuable places, and regret we had not time to call. We shall long remember our trip through Marin and Sonoma Counties.

SANTA CLARA COUNTY.

Our next trip was among the farmers of Santa Clara County, and continued four days—time most agreeably and profitably spent.

To Col. W. C. Wilson, President, G. George, Secretary, and W. O'Donnel, one of the Directors of the Santa Clara Valley Agricultural Society, we are indebted for the best of facilities for travel, for the most instructive and agreeable company, and for many other attentions which we shall long and pleasantly remember.

Our old traveling companion, Col. Younger, was here at home, and took a great deal of pains to show us the many evidences of thrift and prosperity among the horticulturists and agriculturists of his home county. If there is a people in the State who entertain a just pride in their locality and rich and abundant resources, that people live in the County of Santa Clara.

One of their prominent citizens, Judge Devine, expressed the feeling of the whole people when, in a conversation with us, he very proudly and emphatically remarked, "I have traveled around the world, have visited and studied the climate and advantages of every country of any note or pretensions, and of all the countries I have seen the Pacific slope, from the British possessions on the north to Terra del Fuego, is the best part of the world. It is the most favorably located, has the most agreeable climate, and possesses the most abundant and valuable resources. Of all this most favored land I am fully of the opinion that Santa Clara Valley possesses more advantages than any other locality of equal area. Indeed, I think this county is the granary and garden of the best State in the world."

In population Santa Clara is the third county in the State, is third in wealth, and is certainly behind none in the intelligence and enterprise of her people. In no other county have so many shade and ornamental trees been planted along the streets and highways; no other county contains so many and extensive nurseries of fruit and forest trees; no other county has such an abundant supply of water for irrigating purposes, and none make so constant and effective use of this water; no other county in the State, if in the Union, produces such a quantity of small fruits—strawberries, blackberries, and raspberries; no other county contains so many bearing apple and peach trees; and but four other counties produce more wheat. With such a record the people may well feel a local pride in their county. They are also justly proud of their chief city and capital—

SAN JOSÉ.

This city is better provided with public squares or parks, well laid out and ornamented; has a greater number of fine residences, surrounded by extensive and superb grounds, studded with tastefully arranged evergreens and other ornamental trees, shrubs, and vines, than any other city in the State. There are, indeed, almost in the very heart of the city, a number of establishments which for extent and variety of cultivation would, in many countries, rank with good-sized farms. Among these we may name that of

GENERAL NAGLEE.

While the General has a place about his residence most gorgeously ornamented with a profusion of trees and vines of almost every variety, both foreign and native, to be found in the State, the principal feature of attraction to us is his vineyard, his wine and brandy cellars. We were attracted by these because with them the General is carrying on a system of experiments of great value to the State, and especially to the wine growers. He formerly pruned his vines low, and approves of this mode of pruning now—on sidehills, with good exposure, where he thinks the vine should only be grown—but for low, damp land, subject to late frosts, he has found by experiment that grapes mature earlier, and bear more plentifully, if trained up from four to six feet high.

By changing the system of pruning from low to high, he has on his land increased the yield from one hundred thousand pounds to four hundred thousand pounds annually, or quadrupled the product and improved the quality very materially.

BRANDY MAKING.

To this particular branch of business General Naglee has devoted much time and money, and has instituted many valuable experiments. He has visited a large number of the brandy distilleries of the Cognac district, in France, and brought home with him hints learned by practical men years in the business. He has given his personal attention to the distillation of his brandy, with a view to proving that California can produce as valuable an article as the best brandy districts of Europe; and if we may judge of his success by the quality of the product, he has been most eminently successful. He has been experimenting with different kinds of grapes with a view to determine the characteristics of each for wine purposes. He has by slow and careful distillation proved that the peculiar bouquet and flavor of the grape may be retained in the brandy, and hence that there is a great difference in the value of different kinds of grapes for brandy, and consequently for wine purposes. His experiments have led him to prefer the La Folle, the Reisling, the Rose de Peru, the Pinaud, to the Mission grape, and to all other kinds with which he has experimented. He has now on hand ten thousand gallons of brandy of the vintage of eighteen hundred and sixty-nine, twelve thousand of eighteen hundred and seventy, and eighteen thousand of eighteen hundred and seventy-one.

He proposes to sell no brandy until five years old, at which age, and not before, he considers it ripe. He proposes to put each year's vintage on the market as it arrives at that age—but will sell only to consumers. The General expressed a determination to attend the Fair of the Vine Growers' Association, at Sacramento, and to do all he can to forward the interests of the vine industry of the State. Through his social position and wealth his influence in this direction will doubtless be very great.

The magnificent residence grounds, or we may call it the city farm, of

MRS. S. J. HENSLEY,

Was next visited. It consists of thirty-five acres, in the very center of the city, most tastefully laid out, and ornamented with a great variety of trees, shrubs, and flowers. Among the trees we noticed the magnolia in bloom, the coffee tree, the persimmon, the English walnut, the shagbark, black walnut, the native California walnut, and a great variety of other nut-bearing trees, mostly loaded with fruit. There are on the place seven artesian wells throwing up the sparkling water, and an artificial lake covering about half an acre of ground. The residence was burned down in eighteen hundred and seventy, but will be rebuilt the present season. The place is under the charge of a son of Mrs. Hensley—C. B. Hensley—who shows a good deal of judgment and taste in its management.

Mr. Hensley is quite extensively engaged in breeding thoroughbred stock, especially in the horse line. He has ten thoroughbred mares, all bred to Patchen, this year; has four Patchen colts, one Blackhawk, and some General Taylor colts. He intends exhibiting some of the mares at the Santa Clara and State Fairs this Fall.

We also visited the place of the pioneer horticulturist and florist,

WILLIAM O'DONNEL.

The appearance of this place, as you enter at the front gate, is that of a highly ornamented gentleman's residence. The finely laid out and richly bordered walks, the tastefully located evergreens, intermingled with choice deciduous trees, show that the whole work has been planned by a skillful landscape gardener, and that O'Donnel is master of his profession. As you pass through the ornamental front yard you enter the orchard and nursery; then you see the ornamental and useful most gracefully combined, showing that the owner has an eye to business as well as ornament. To O'Donnel's skill as a nurseryman, and enterprise as a man, San José owes much of her beauty over other cities of the State; and Santa Clara Valley has been ornamented from the products of his labor, and the correctness of his taste.

FAIR GROUNDS.

In company with President Wilson, we took an early ride one morning to the grounds of the Agricultural Society.

These grounds are situated on the alameda, between San José and Santa Clara. They contain seventy-six acres, on the back part of which is laid out one of the finest mile tracks in the State, leaving an abundance of room for a grand stand, Judges' stand, stables, and all other buildings necessary as fixtures to a well-regulated race track. There is also room for a large public house, a pavilion for the exhibition of agricultural implements and products, mechanical inventions, fruit, and all other articles shown in such a building; also, for a grand amphitheater, for the exhibition and examination of stock, after the plan of the St. Louis Fair grounds. The grounds are already laid out and ornamented with reference to all these improvements, and we are assured that it will be but a few years before all will be made. These grounds are worth to-day the sum of one thousand dollars per acre, or seventy-six thousand dollars, and the best thing connected with them is that the society owns them, and is free of debt, and has already a pretty good sum in the building fund.

HORSES IN TRAINING.

We could not leave the Fair grounds without taking a look at the many fast horses that are there in training for the Fair of the society, and for the races at the State Fair.

Seeing a fine-looking horse about ready for his morning exercise, we were attracted to the stable he had just left to meet the well-known gentleman and turfman, A. C. St. John, about to start his excellent horse Defiance around the track. We had the pleasure of seeing him go, and his performance indicates that the horse that would throw dust in his eyes will have some work on hand. Mr. St. John has a stable of nine horses: pacers, Defiance and Trifle; trotters, Belmont, Proctor, Jenny Spencer, and Robert Bonner; runners, Demorett, St. John, and Jessie Lane. J. W. Donaldson has the two running fillies Irene Harding and Lulu Jackson. G. Fancher has trotters, Frank, Baltimore Belle, Beach Colt, Ike Cooke, Spence, Hunter, Ethan Allen, and G. M. Patchen, Jr. Robert Wooding has runners, Phil. Sheridan and filly Mission Belle. Charles Murphy has Peri, Omaha, and Mary Watson; and the old veteran trainer, J. M. Daniels, has under his charge the promising McLellan colt, Longfellow. Additional stables of horses are soon expected on the ground, and the people of the State may look for fun when all the horses from the several County and District Fairs meet to contest for the purses offered by the State Society at the State Fair.

THE COUNTRY.

Five miles out of San José, towards the head of the valley, or in the direction of the New Almaden Mines, we called at the residence of the old pioneer, Isaac Brenham. Mr. Brenham formerly owned some two thousand acres of land here, but of late years has sold off till now his farm consists of four hundred and fifty acres. He has two hundred and fifty acres of this in wheat, which, at the time of our visit, was nearly ready for the header, and will yield from thirty to forty bushels to the acre. He has fifty acres in vineyard, about one fourth of foreign varieties, the balance of the Mission; has about five thousand gallons of wine on hand, and one thousand eight hundred gallons of brandy, both of which are of good quality. Mr. Brenham has not given the brandy or wine business very close attention; but is prepared with vinous machinery, still, etc., for a successful and profitable business. As Mr. O'Donnel remarked, this business alone, if well attended to, is a fortune, with the superior soil and other advantages possessed by Mr. Brenham.

STOCKTON'S VINEYARD.

A near neighbor of Mr. Brenham is Dr. N. H. Stockton, who, ten years ago, bought one hundred acres of land and planted vines from year to year, until now he has sixty-five acres as a bearing vineyard.

He has on hand, of the vintage of eighteen hundred and seventy, about eleven thousand gallons, and of eighteen hundred and seventy-one, thirteen thousand gallons. He has been giving his strict personal attention to his vineyard, and to him, at least, wine-making and selling has been successful, both in the article produced and financially. He has a large wine house and cellar, in which he makes and stores his wines.

He has, until lately, sold his wines at about fifty cents per gallon, and at that price has achieved his financial success; but, for the past two years, has been sending samples of his wines East to his brother, who has established an agency or commission house for their sale at Little Rock, Arkansas. They are liked so well in that vicinity, that hereafter he intends sending all he makes there, where they find ready sale at very satisfactory and remunerative prices. We noticed the wines of this vineyard partake considerably of the character of the German Rhenish wine, and are quite light in alcohol. Our next call was at the

VINEYARD OF D. M. HARWARD,

Whose place is seven and a half miles from San José, and who has the largest vineyard in the county—one hundred and forty acres. Mr. Harward is now East making a market for his wines, but we found a very intelligent German, John Schindler, his wine maker and foreman, in charge of his place. From him we obtained much valuable information. Mr. Harward's vineyard is young; the first wine made is but four years old; has no samples on hand of wine made previous to eighteen hundred and seventy-one; of that vintage, has about twenty thousand gallons.

PRUNING THE CATAWBA GRAPE.

Like many other wine growers of the State, Mr. Harward had concluded that the Catawba grape could not be made to pay for wine, or any other purpose, in California, on account of it being so shy a bearer, and had cut down many of his vines of this variety, and had grafted them with other and better bearing kinds, and intended in this way to get rid of them all. Mr. Schindler, who has worked in the Catawba vineyards about Cincinnati for a number of years, protested against this course, and induced Mr. Harward to spare two or three acres of Catawba vines and allow him to prune some of them, with a view to increasing their productiveness. We went out to the vineyard to see the result of the experiment, and we assure our readers it was most astonishing. The usual course of short pruning—cutting back the canes intended for fruit, to from two to three buds, had been followed with all the Catawba vines in the field, except four rows. These four rows had been pruned by Mr. Schindler after his plan. He cut all the canes of the last year's wood, except from four to six of the strongest, according to the strength of the vine, off close to the old wood. These four or six canes left, he cut off about three feet long, and tied them loosely to a stake until the Spring cultivation was done. He then cut the string and laid these canes down on the ground, spreading them around the body of the vine as much as possible, so that one would not lie upon another. And now for the result. On the vines pruned in the ordinary way we could find but a few scattering, poorly formed, and poorly filled, bunches of uneven-sized grapes, not to exceed, on an average, from five to six pounds to a vine; while the vines, pruned as above described, were loaded as we have scarcely ever seen vines loaded before. Each cane had thrown out side branches at each joint, and every one of these side branches were crowded full of the finest formed bunches of Catawba grapes we ever saw. The bunches were compact, long, and full, and the vines will average from twenty to forty pounds each. Mr. Schindler assures us, that by pursuing this system of pruning from year to year—cutting off the old canes each year, and leaving a proper number of young canes for fruit—the Catawba can be made one of the most prolific bearers, and the grapes are much improved for wine purposes. All wine growers should see the result of this experiment to appreciate it.

CORROBORATIVE TESTIMONY.

In speaking of this matter to Dr. W. S. Manlove, of Sacramento County, he told us that for the last three years he had been pursuing the same course with his Catawba vines, and with the same result. To obtain the best results from this system, the head or crown of the vine should not be over a foot or eighteen inches above the ground, so that the grapes, when growing, may lie directly upon it. We find that it is becoming the opinion of many of the best wine growers in the State, that vines generally will do better by leaving the bearing canes longer than it has generally been practiced; and Mr. Schindler shares in this opinion. Longer canes and fewer of them, is the coming rule; and more wine and less alcohol is the claimed and desired result.

The next vineyard visited was that of

C. H. LE FRANK,

About one mile from that of Mr. Harward. This vineyard contains one hundred acres, sixty of Mission and forty of foreign kinds, planted from four to five and six feet apart, according to requirements of varieties and soil.

Although the proprietor was not at home, his good wife, her little son, and the foreman managed to make our visit very agreeable and valuable to us. We found here one of the best arranged and regulated wine houses and cellars we have seen in the State. It has three stories; one for crushing the grapes, one below for fermenting the wine, and the basement or cellar for storage. It is seventy by eighty feet square. The entire building is in excellent condition, clean and tidy, and supplied with all the necessary tools and improvements of a modern wine-making establishment. This cellar is called the new wine cellar. A short distance from this is another building, partly below and partly above ground—one story—seventy by thirty, which is called the old wine cellar, intended for storing wines until they become fully ripe. In the two cellars we found about forty thousand gallons of wine; six hundred gallons six years old, one thousand five years old, four thousand four years old, eight thousand three years old, thirteen thousand two years old, and eighteen thousand one year old. Mr. Le Frank makes no brandy.

AN IMPORTANT FACT—REDWOOD CASKS OR BUTTS FOR STORING WINE.

At this place we saw fully demonstrated the important fact that redwood is equally as good as the best of oak for the storage of wine. Mr. Le Frank has redwood butts in which he has kept wine seven years, as well as it can be kept in any other material. He has now in his cellar seventeen of these butts, all made of redwood, and all full of wine. Two of them are of the capacity of four thousand three hundred gallons each. They are made on the place, from split staves obtained in the redwoods near by. Before shaving they are steamed for two or three days, and while steaming, are brought to the proper shape, then seasoned, shaved, and put together. It is claimed for them, that in addition to being only half as costly, they will last longer than casks made from the best of oak. Worms never touch them, and they impart neither taste nor color to the wine. To Mr. Le Frank, undoubtedly, belongs the honor of demonstrating this important fact, and to him the wine growers of California are indebted for a discovery that adds millions to the value of their industry. In this connection we would call attention to the premium of fifty dollars offered by the California Vine Growers' and Wine and Brandy Manufacturers' Association for the best and cheapest tank, cask, or butt for the storage of wine.

FINE ANGELICA.

We were shown here a sample of angelica that, in our opinion, is superior to anything of the kind in the State, and if exhibited at the Vine Growers' Fair, can hardly fail to secure the highest award. It is four years old.

We continue our trip among the farmers of Santa Clara Valley, and to commence at the farm of Isaac Bird, located but a few miles from San José, on a tract of land called "The Willows," from the fact that it was formerly grown up with willow brush and was counted of but little value.

HOPS.

Mr. Bird is one of the pioneers of the State in the cultivation of hops, and is probably as well skilled in the business as any other man in the State. He planted his first roots in eighteen hundred and sixty, and although they made a fine growth and produced well and of good quality, he could find no buyers at any price. So great was the prejudice of brewers against the California product that they would scarcely look at them, much less give them a fair trial, to test their value. After producing two or three crops and finding no market, Mr. Bird gave up the business as a bad undertaking, and dug up his roots, and turned his attention to other industries. We mention this as one of many illustrations of the foolish prejudice entertained by our people against products of our own State, when they come in competition with the imported article. Our new products have to make their way against this senseless prejudice, and also against the more potent difficulty, the interest of the importer. Our wine growers are now in the midst of a contest against these two enemies, but as the hop men have signally triumphed and won a place and character for California hops, equal to the best in the world, so will our wine growers succeed, and in a few years our wines will class with the best of European. Our silk growers may also take heart and see in the final success of hop culture the road open to a greater success for their favorite industry, and those who dug up their trees in eighteen hundred and seventy-one may replant them before eighteen hundred and seventy-eight. Mr. Bird replanted his land to hops in eighteen hundred and sixty-seven, and now has thirty-eight and one half acres in the vines. He prefers the horizontal system of training, which consists of poles about seven feet high above the ground with twine stretched from pole to pole in every direction, to the long pole system, which consists of poles from twelve to fifteen feet long without the twine. Hops trained in the horizontal manner produced about twenty-five per cent more last year than those on the long poles, soil and all other circumstances being equal. Mr. Bird is attending his hops in person this year, to observe the effects of experiments he is carrying on to learn the particular systems of pruning and training best adapted to different kinds of soil.

It has been and is now the system of most growers to cut off the surface runners that come up from the roots after the main vines have been trained on the poles so as to send more vigor into the main vine, but Mr. Bird has proved by repeated experiments that this object is accomplished much more successfully and a more vigorous growth is secured to the main vine, and a fuller and better crop is secured by covering these surface runners up with earth as often as they make their appearance. By this operation he claims that the sap of the surface runners is thrown back into the main vine, and thus a better developed and heavier crop secured. Hops are now worth in New York from thirty to seventy cents a pound, and it is expected that our producers this year will receive a very high and paying price—say from fifty to seventy-five cents. Our next visit was to the

NURSERY OF S. NEWHALL,

Just across the way from Bird's. Here we found twelve acres in the highest state of cultivation. Mr. N. commenced on this land but three years ago, and at that time it was covered with a dense growth of willow brush. He has raised and sold three crops of trees, and has now in his nursery over forty thousand trees, embracing nearly all varieties of fruit grown in the temperate and tropical climates. Also a large number of shade and ornamental and nut-bearing trees of nearly every variety known. We saw here the beautiful tulip or white wood tree of the Eastern States; also the linn or American basswood, growing in splendid style and as natural as life. The same land that these trees are growing on in the nursery, is planted with standard fruit trees: four acres of bearing cherries; six in apples, many bearing; and two in plums and peaches. He also has a large patch of blackberries and strawberries in a most excellent bearing condition. So one may safely say that of the twelve acres under cultivation by Mr. Newhall, all are fully occupied. One thing, however, we noticed was not so—his house. He is an old bach.

Our next stopping place was at the home of

F. SANDERSON,

Who has under cultivation, principally in small fruits, nine and a half acres, three acres of which, the early Franconia raspberry, yield on an average three tons per acre. He sells these berries at an average of fourteen cents per pound; thus the income per acre is eight hundred and forty dollars. He has also three acres in currants, which also bring a good income. Mr. S. is also in the nursery business, but makes a specialty of nut-bearing trees, of which he has over twenty thousand growing.

Probably the most extensive orchardist and nurseryman in the county is

B. S. FOX.

We had been informed that Mr. F. was absent from home, but we were unexpectedly and very agreeably disappointed in finding him at home. Mr. Fox is a business man, so we went immediately to business, and the first thing was to set down to and enjoy an excellent dinner. This done we walked through the orchard, which we found in an excellent condition. It covers about seventy-five acres—two thirds in pears and the balance in apples and plums. The fruit from this orchard has been sold this year to L. A. Gould, on the trees, for four thousand five hundred dollars.

In the nursery we find almost every variety of tree—fruit and ornamental—cultivated in the State. To name them and give the number of each kind would take too much space, but will say that the whole number in the nursery cannot be less than half a million, and that should any number of trees be wanted, and if they cannot be found anywhere else in the State, you will be sure to find them in the nursery of B. S. Fox.

Having expressed a desire to see and learn something of the

STRAWBERRY BUSINESS,

Our traveling companions determined to call at the farm of S. L. Broughton, three miles from town. Mr. Broughton has sixty-five acres in all—twenty in strawberries, twelve in apple, pear, and peach orchard, and the balance in vegetables, hay, etc. Our first point made was the strawberry field. The berries are planted in rows—say two rows of berries about eighteen inches apart; each row on the outer edge of a ridge of about that width, and a foot high. Then comes a space of say three feet, slightly excavated, in which is kept constantly, or nearly so, during the dry season, water from the artesian well. Then two more rows of berries, and another three-feet space and water, and so on. It is hardly necessary to say the vines were growing luxuriantly and bearing abundantly, and the berries luscious. The kind principally cultivated in the valley is Longworth's Prolific.

Mr. Broughton rents his strawberry land to Chinamen in this manner: He furnishes land, plants, and water; the Chinamen plant, cultivate, and pick the berries and deliver them to him; he markets the berries and divides the proceeds equally. The gross receipts this year from the twenty acres of berries is six thousand four hundred dollars; net receipts to Broughton, three thousand two hundred dollars, or one hundred and sixty dollars per acre. It will be seen that this is really for the rent of the land, as the cost of marketing the berries is but a trifle.

For the fruit growing on his twelve acres of orchard, he has been offered and refused one thousand dollars, the buyer proposing to take them on the trees.

Ten acres of this farm is in asparagus, and the average yield per acre per annum is one hundred and fifty dollars; net, about one hundred and twenty dollars per acre.

We are informed that there is in the valley about six hundred acres in strawberries, and that the most of this is rented to Chinamen upon the same terms as that of Broughton, and that his is about an average yield.

THOROUGHBRED STOCK.

Santa Clara County is becoming noted for its fine horses, cattle, and sheep, but we had not time at this visit to call on but few of the owners. We shall make it our business to see them at the County Fair. Mr. Quinn, who is engaged in farming and dairy business, has of late years been improving his dairy cows by breeding to Durham bulls. He has now five thoroughbred cattle, two cows, a two-year-old bull, and two heifer calves. They are all very fine animals, originally from the herd of Colonel Younger. He has twenty head of very fine graded animals, from one half to fifteen sixteenths Durham, and gives his testimony strongly in favor of the Durhams as dairy cows.

COLONEL YOUNGER'S HERD.

The largest herd of thoroughbred Durham cattle in the State belongs to Colonel C. Younger, who has been our traveling companion while we have been taking these notes. The Colonel resides one mile from the City of San José, on the Alviso road, and has a farm most admirably located and adapted to the business to which he is devoting it. He is the only man in the State who is making the breeding of Durham cattle a specialty, and of all men we have met he seems the best calculated to make the business a success. On this subject he is a thorough enthusiast; and yet, he has studied the subject so well, and had so much practical experience in it, that no amount of enthusiasm can warp his judgment. To him, above all other men in the State, is due the credit of holding firmly to the business, and keeping right along increasing his herd in numbers and improving them in quality, when others have become discouraged and abandoned the business in disgust, complaining that the people of California could not appreciate the difference between thoroughbred Durham cattle and the meanest Spanish scrub, with which the country was formerly filled. Very much credit is due to Colonel Younger for persevering until, by his efforts, a more correct public sentiment has been created in regard to the real value and merit of these cattle. For that perseverance he is now reaping the reward. He has already sold this year five thousand one hundred dollars worth of cattle from his herd at most satisfactory prices, and has now on hand fifty-eight head that will compare favorably with any herd of its numbers in the United States. As the Colonel intends making a large exhibition of this stock at several of the District Fairs and the State Fair, we will not speak of any of them individually, but will say, in general terms, that those who like to see good stock will do well to look them up.

NOTES TAKEN AT THE FAIRS.

BY THE CORRESPONDING SECRETARY.

BAY DISTRICT HORTICULTURAL AND AGRICULTURAL FAIRS.

For two reasons we have been anticipating a succession of interesting and valuable exhibitions at the Fairs of the several County, District, and State Societies this Fall—first, because the last Legislature very wisely appropriated sufficient money to these societies to enable them to offer liberal premiums for the exhibition of the several products of the farm and workshop, thereby stimulating all the industrial classes to greater exertion; and second, because the season has been prosperous, the crops have been good, and the laborer, in whatever calling, has found a plenty of work, at good and remunerative wages.

These circumstances have placed everybody on good terms with themselves and with everybody else. The managers of the several counties have thus been encouraged, and have made every preparation and put forth every exertion necessary to success. If we may judge anything by the opening of the Fair of the Horticultural Association in this city, and the stock show of the Bay District Agricultural Association, on their grounds at Agricultural Park, on the Cliff road, our anticipations will be fully realized.

The former association has been encouraged to buy and fit up a hall for their exhibitions, at an expense of twenty-five thousand dollars, and a most magnificent one they have. The exhibition now being held there of flowers, plants, and fruit, is, so far as the two former articles are concerned, one fully worthy of the city and State in which it is made; indeed, we doubt if another city in the Union could make an exhibition embracing a greater number of varieties of plants and flowers—the representatives of so many countries and climes—as are now to be seen at the horticultural exhibition in this city.

HORTICULTURAL AND FLORAL FAIR.

No one who has any taste for flowers—for the natural beauties of the world—for the "poetry of nature"—should fail to visit this exhibition. No farmer in the State who would have his home made beautiful, his family cheerful and contented, should fail to go himself and take his wife and daughters to this grand collection of plants and flowers. Here may be studied, not only the flowers themselves, but the art of artistic arrangement and combination to produce a pleasing effect. Here lessons in landscape gardening may be taken and studied by an examination of the miniature gardens on exhibition.

The crowds of people that daily and nightly throng this place show how highly it is appreciated and how widely spread will be the favorable lessons it is calculated to inculcate. The exhibition of fruit is not so good. The samples are fine, but there are few of them. In this, however, we were not disappointed. It was hardly to be expected that much fruit would be sent for exhibition here, when it would necessarily have to be renewed once or twice during the continuance of the Fair, or allowed to remain in a decaying condition.

At the State Fair, however, we shall be disappointed if the fruit growers do not show an exhibition worthy of the State and worthy of that important and rapidly increasing industry.

But we must turn our attention to the

STOCK SHOW.

We spent Tuesday among the cattle, horses, sheep, swine, and their owners, and we will right here mention the strongest impression which that day's work and observations have left on our mind. It will be remembered that this association was originally organized, and is still kept up, more particularly to develop, by severe test on the track, the speed of horses; to afford an opportunity for the pleasures and sports of the turf. The show of cattle was an after consideration, and was only added to make the Fairs of the association conform more to the requirements of public opinion and a change of stock interests. To show how rapidly this public opinion, and this interest, has changed in this State within the past few years, we will call attention to the

GRAND PARADE

We witnessed there on Tuesday, and what it consisted of. When all the large stock that were on exhibition were called out and sent marching around the half-mile track, it was a sight that would have pleased the most sturdy breeder of thoroughbred cattle of England. The parade consisted of eighty head of horned cattle, fifty-seven head of horses to halter, five double teams, nine buggies and sulkies, five horses under saddle, and nineteen Knights, mounted and grotesquely caparisoned. The sheep, hogs, and chickens, of course, were not shown on the track.

In this magnificent exhibition of horned cattle, the grand old Durham stock stands foremost, both in number and quality. The Devons are next in number and beauty of appearance. There are also fine specimens of the Alderneys, Ayrshires, and Jerseys.

AT THE STALLS.

After the parade, with thousands of others, attracted by the appearance of the cattle, we repaired to the stalls to examine them more closely, and learn more about them. As you enter the yard, in the first stall on the left, stands at the head of a herd of seventeen, Colonel Younger's famous bull Glencoe. In the first stall on the right, and directly opposite, is J. B. Redmond's equally famous bull Lalla Rookh. These are both magnificent animals, and would do credit to a stock exhibition in any country. We can scarcely refrain from comments on the cattle as we saw them, but our crowded columns forbid, and we are obliged to content ourselves with a very brief mention of them, assuring our readers, however, that before the Fairs are over, we will give a more extented and justly deserved notice of all.

Colonel Younger exhibits Comet, a two-year-old dark red bull, of great promise, weighing one thousand nine hundred pounds; also, Tempest, a dark red yearling, and four bull calves, Red Oak, Planet, Gold Dust, and Moonlight. Then comes his two favorite cows, Sprightly and Lady of the Lake. To be appreciated, these cows should be seen. They are four years old, and weigh, respectively, one thousand seven hundred pounds, and one thousand seven hundred and ten pounds. Glenrose and Norma represent, respectively, his three and two-year-old cows; Jenny and Maid of Woodlawn, yearlings; heifer calves, Rosette, Lady Booth, Gem, and Forest Queen.

The above are the representatives of the Colonel's herd of fifty-eight head of Durhams.

Mr. Redmond shows a six-year-old red cow, Noveta Queen, and a yearling, Queen First, weighing one thousand one hundred and two pounds; and as three and two-year-old cows, Bertha Twenty-eighth and Bertha Twenty-ninth; also, Damsel, a five-year-old, and two calves, Victor and Prime Minister. Mr. R. has forty-seven head of Durham stock on his place.

W. S. Overhiser, of San Joaquin, showed ten head. At the head of his list stands a red two-year-old bull, Third Grand Turk of Oak Home, and a year-old Fourth Grand Turk of Oak Home. Then comes Rosette Second, Rosette Third, Tulip Sixth, Tulip Eighth, and Rosette Fifth, aged respectively, five, four, three, two, and one years. Then Flora Temple Sixth, eighteen months; and Duchess D'Argenten, one year; and a bull calf, Ninth Grand Turk of Oak Home. These are the representatives of Mr. Overhiser's herd of thirty-two head of Durhams.

Charles Clark, of Santa Clara, shows a fine three-year-old bull, Lincoln, and six head of graded cattle, which he claims are really thoroughbred, but because the rules of the Association require "pedigree," which he is not prepared to show from the herd book, he enters them as graded. They show blood.

Page Brothers, of Sonoma, show three head of Durhams: a three-year-old bull, Sultan; a four-year-old cow, Lady Jane; and a calf, Colata.

Robert Ashburner, of Marin, shows eighteen head of Durhams: White Prince, Mark Anthony, Red Rose, and fifteen others, but as their names and ages even are not on the stalls, we can give no particulars.

Seneca Daniels, of Sonoma, shows fourteen head of Devons, and J. R. Rose, of same county, shows seven head of the same breed of stock. You may talk to Daniels or Rose from now to doomsday and you can't make them believe that there is any better cattle in the world, for our own peculiar climate, than the Devons. There are many others who think the same way. Experience ought to make good judges, and Daniels and Rose are noted for shrewd business sagacity.

A. Mailliard, of Marin, shows four head of Alderneys—fine samples of this breed of cattle.

F. D. Atherton, of San Mateo, shows six head of Ayrshires; and Thomas H. Selby, of this city, one head—good representatives of their kind.

P. L. Weaver, of Napa, shows four head of the famous dairy cattle, the Jerseys, as a representation of a herd of twenty-one.

SHEEP.

Robert Beck, of Sacramento, shows ten head—five rams and five ewes—representatives of his flock of seventy-five head, imported this year from the famous Silesian flock of William Chamberlain, of Red Hook, New York.

Page Brothers show seventeen head—six rams and ten ewes—of the French merino.

Smith & Overhiser show thirty-four head, all Spanish merino.

Peter Saxe shows two rams, eight ewes, and four lambs, of the Cotswold sheep.

Saxe & Jewett show thirty-three head of Spanish merinos, just imported from Vermont.

SWINE.

Peter Saxe shows two Chester Whites, eleven Berkshires, and two Essex, just imported.

SANTA CLARA VALLEY FAIR.

As the Fairs of the Santa Clara Valley Society, at San José, and of the Northern District Society, at Marysville, come off at the same time, we determined to be at both—at San José the first part, and at Marysville the latter part of the week. If our reports are not full, our excuse is that we cannot be at both places at the same time. We arrived at San José at half past two o'clock P. M.; and after lunch at the Auzerais House, we, in company with Mr. Doake, President of the San Joaquin Society, found our way at once to the stock ground, where we found the first race, a trotting race, mile heats, three in five, purse five hundred dollars, free for horses that never beat three minutes, on the docket under the immediate direction of President Billy Wilson, who, though rather too heavy for a sulky or skeleton wagon, delights in a "square trot" as much as any man we wot of.

The entries were, Hayward's Lady Blanchard and Smith's Lady Lee. The race and money were won easily by Lady Blanchard in three straight heats; time, 2.36¾, 2.38, and 2.36. Next came a

PACING RACE,

Purse two hundred and fifty dollars, free for all horses that had never shown better time than 2.30. Trifle, Wonder, Capitola, and Swindler, were entered, and all started. The race proved a very exciting and interesting one. The first and second heats were won by St. John's Trifle in 2.35¼ and 2.32½; the third and fourth heats were won by Goodhu's Capitola in 2.33¼ and 2.36. The fifth and last heat and race was won by Trifle in 2.39. Wonder was distanced in the second heat, and Swindler in the third.

While the races were in order, everybody was looking on, and so we went with the crowd; and judging that our readers would be interested we give them the notes. The races over, we went for the

STOCK.

In this department we found the exhibition a perfect success. The exhibition of horned cattle was really much superior to what we had expected, even for Santa Clara Valley, noted, as it is, for good cattle. The exhibition would even have been a credit to the State Society, and really did great honor to the county, there being in all something over sixty head—Durhams, Devons, Holsteins, and Alderneys.

Charles Clark showed his bull, Lincoln, by Jeff Davis (curious names to be appropriated as sire and son), who won the first premium for three-year-old Durham bull at San Francisco; also, six head of excellent graded cattle—same as shown there.

Colonel Younger exhibited the same as at San Francisco, with the exception of one sold; and, in addition, he had two calves—his fine cow, Sprightly, having dropped a fine red roan heifer calf on the last day of the San Francisco Fair, and Lady of the Lake, a deep red bull calf on the first day of this Fair.

Besides these additions he has here Peggy First and calf, Nan, the mother of Planet, and Nelly and calf White Oak. As those exhibited at San Francisco have made a good record so far, we will put it down here for reference. Glencoe won the first premium as a four-year-old bull; also the sweepstake as the best bull of any age or breed; also the premium for the best bull and five of his calves under one year old, and stood at the head of the herd that won the society's gold medal for the best exhibit in the stock department.

The calves shown with Glencoe, and that helped to win the herd premium, were Red Oak, Planet, Moonlight, Gem, and Lady Booth.

Sprightly won the first premium as best four-year-old cow; Glenrose, the first as a three-year-old; Norma, as best two-year-old; Lady Booth, as best heifer calf; Tempest, the first premium as best yearling bull, and Moonlight as best bull calf. This is certainly a good starter for one week's work: and considering the great number and high character of the cattle they had to compete with, a high recommendation.

S. B. Emerson, of San José, shows a thoroughbred Holstein bull, Opendoes Twelfth, and cow Opendoes Eighth—both black and white—also, a bull and heifer, a cross between thoroughbred Durham and Holstein; both very fine animals. The bull is dark roan and white, and the heifer pure black and white, and in form and appearance they combine the points of both breeds of cattle. The Holsteins are claimed to be the best cheese makers; they are Dutch cattle, and in this quality seem to be made purposely for the Dutch, who are great cheese eaters.

William Buckley, of San José, shows a fine graded cow and calf by Glencoe. The calf is a deep red, and should be christened Beauty, to correspond with her appearance.

John L. Pearl shows two graded bulls, a cross with the Durham stock—a two-year-old and a yearling.

Jackson Lewis shows an eight-months graded Durham calf, weighing one thousand and ten pounds.

Major Vernon shows Dandy Jim, a bull just imported from Illinois—a fine specimen of his stock—and though but two years old he has won, at the several Fairs he has been shown at, the round sum of one thousand nine hundred and forty dollars as premiums. He is a dark roan and certainly a very fine two-year-old. We shall hear from him, as the Major says he intends to show him wherever good cattle are to be seen.

B. Fisk shows a very fine and large Devon bull, Billy, imported from England. This bull would go hard for a first prize at the State Fair. He weighs one thousand nine hundred pounds.

C. B. Polhemus exhibits two Durham bulls, one year old—both red and roan—named Capt. Jenks and Phil. Sheridan. They are representatives of Polhemus' herd of ten Durhams. Mr. Polhemus also exhibits three Alderney cattle—a bull, cow, and calf—representatives of a herd of seven of this breed.

William Quinn shows six head of Durhams—a bull and five cows—representatives of a herd of some twenty head owned by him.

Thomas Blake shows a three-year-old Devon bull, Billy, imported from England; also, three graded heifers.

Jesse D. Carr, of Monterey, shows six head of Durham cattle; two two year-old bulls—Rome, imported from Kentucky last year, and Butterdale, by Colonel Younger's Glencoe. His cows are Laura and bull calf Dixie, and Maud and heifer calf Daisy.

HORSES.

The stable of John Hall, here, as ever, embraces some very fair thoroughbred stock, first among which we mention his four-year-old stallion Ironclad, by Woodburn; also, an own brother, Alex., after the Russian Prince—a two-year-old; also, a yearling, not named, and a sucking colt, Captain Harris—all by Woodburn. Of mares, he shows Peggy Ringgold and Moss Rose, both brood mares; also, a two-year-old filly, Lady Frank, and a yearling, Belle Mory, and a mare colt, Lady Washington, foaled on Washington's birthday, in 1870; also, a grade mare by Dashaway.

William Hamilton, of San José, shows twenty head of horses. At the head of this stable stands his fine stallion Ethan Allen, Jr., and then come five brood mares and fourteen head of their colts, among which is one three-year-old filly, Bess Allen, the winner of the premium for the best three-year-old roadster, at San Francisco; also, a two-year-old filly, Fannie Allen, who also won a first premium at San Francisco. This filly Mr. Hamilton will match against any colt of her age in the State. Also, a year-old stallion, winner of a first premium in the class of graded colts at San Francisco.

Jesse D. Carr shows his imported three-year-old stallion Membrino, a very promising young horse.

Daniel McCraig shows an English draught horse, Black Lance, and two two-year-old geldings.

Charles Murphy shows three fine mares, Peri and filly Omah, and Mary Watson.

Alexander Anderson has stallion Abdallah and six of his colts, shown as a family.

S. B. Whipple exhibits Ajax, Lady Blanchard, and Moscow, all trotters.

There were many other large or small stables of horses, but for want of time we could not examine and report on them. Sheep and goats were also well represented.

THE HALL.

Though this society is in a more easy position financially, and has a greater abundance of land for track and buildings, than any other society in the State, still it owns no hall for the exhibition of agricultural products or machinery. The society intend building, in a few years, a fine pavilion on their ground in front of the cattle ground; also a large amphitheater in which to show stock.

In the meantime, they hold their indoor exhibition in rented buildings in the city—this year in Music Hall, a very commodious and appropriate place. To this we repaired after tea. The exhibition is held in four rooms—one a large one, perhaps forty by eighty feet, the other three smaller. The exhibition in the large room is well arranged, and the articles particularly well displayed. We can only give a few of the exhibitions, and the names of their owners.

PLANTS AND FLOWERS.

The first thing that attracted our attention was a floral design in a pyramidal form, near the center of the room, by the pioneer florist and horticulturist, William O'Donnel. The center and apex of the pyramid consisted of a beautiful blue gum tree, at least twelve feet high, and around this were clustered smaller trees of many varieties, mostly of evergreen, finally coming down to evergreens, variegated, ornamental, and flowering plants, finally bordered with a wreath of Monterey cypress interwoven with a choice collection of high-colored cut flowers, making, as a whole, a most attractive and pleasing feature.

Immediately behind this, L. Sanders has a table of choice flowering plants, evergreens, and ferns, artfully arranged and well displayed; also a fine collection of cut flowers.

In an adjoining room John Rock, the nurseryman, has a table of fine appearing evergreens, flowers, and pot plants.

S. J. Hensley also exhibits a number of the flowers of the magnolia grandiflora, one of the most magnificent of flowers; also branches of the Java coffee tree, the persimmon, and other rare trees and plants.

FRUITS.

On either side of these tables are the fruit tables, well loaded with fine specimens of the standard fruits of the valleys, including apples, pears, plums, peaches, grapes, blackberries, and several kinds of nuts. In this line Captain Pebles, J. Q. A. Ballou, D. M. Harwood, Dr. Smith, O'Donnel, and some others, were the principal exhibitors. The exhibition is a creditable one.

WINES.

C. H. Le Frank has a fine exhibition of a variety of wines, which we know are good, having tasted them at his house some months since. O'Donnel also exhibits some wines, cider, and brandy. The latter gentleman, being a Director, shows nothing in competition.

VEGETABLES.

The exhibition of vegetables is small, but of good quality. People seem to take it for granted that everybody knows we can raise big pumpkins, cabbages, melons, tomatoes, etc., and are careless about exhibiting.

We noticed three sacks of wheat, the only grain we saw on exhibition. In this the farmers are certainly at fault. Such things should be exhibited and studied by themselves, and for the benefit of strangers.

MECHANICAL.

In this department the exhibition is very light, D. McKinzie being the principal exhibitor. He makes a good display of iron and brass castings, of good design and finish; also some agricultural implements, among which we noticed an iron framed harrow, the frame being cast hollow, to give it durability and lightness, and a tule-cutting plow.

Sarwain Tounar exhibits some beautiful rustic furniture, made mostly of the buckeye wood, ornamented in a very artistic style with shells and bright colored stones, highly polished and varnished. They will do well for arbors, porches, or parlors, and we see them in many of the most elegant front yards about the city.

SILK.

Mons. Sauffrignon makes a beautiful display of cocoons in brush, in cases, and silk in the reeled state; also silkworm eggs. In this line lack of exhibition of the late Mr. Prevost is noticeable. His exhibition was always an attractive feature of their Fair, and generally of the other Fairs of the State.

THE FINE ARTS.

In this department Messrs. De Long, Combs & Co. make a very considerable display of marble work—mantel, headstones, and medallions—also several plaster busts. The work on some of these articles is exquisite, showing good taste and execution.

Mr. Ward shows some very fine photographs, plain and colored, and oil paintings.

On the whole, the exhibition is a decided success, doing great credit to the management and the citizens generally.

NORTHERN DISTRICT FAIR.

Leaving San José on Wednesday, at four P. M., we arrived at Marysville on Thursday, at 3 P. M., just in time to see the last and closing heat of a very exciting pacing race between three local horses—Handy Andy, Prussian Maid, and Montague—Andy winning the second, third, and fourth heats, and the race, in 2:32½; 2:33½; 2:35¼. We found the attendance very good, and everybody in good humor, especially the President, S. T. Brewster; the Secretary, Mr. Donley; and Mr. Marcuse, the Treasurer. And we have seen enough about Fairs to know that when these officers are in especial good humor at Fair time, the Fair is a success; and we are glad to state that this instance proved no exception to the general rule. We have attended a number of Fairs at Marysville under the auspices of the Northern District Society, and we think this in many respects was superior to any we have ever witnessed. The excitement of the day being over and our time being limited, we repaired at once to the

CATTLE STALLS,

Where we had been assured were to be seen some cattle who knew how to carry first premiums and sweepstake ribbons at the same time. The first animal we came to was, sure enough, Swezy's famous bull, First Duke of Yuba, who has taken the first premiums and sweepstakes at the Fairs in this district every year since eighteen hundred and sixty-nine—when he was a calf—and who, at the State Fairs of eighteen hundred and sixty-nine, eighteen hundred and seventy, and eighteen hundred and seventy-one, as the records show, carried off the first premiums as a calf, grading at two-year old, and in the last named year was also awarded the sweepstakes as the best bull of any breed or age. The next animal was Beauty, who also has a good record, having taken four first premiums and three sweepstakes in this district; and four first premiums in her class at the State Fairs, and in eighteen hundred and seventy and eighteen hundred and seventy-one having been awarded the sweepstakes as the best cow of any breed or age. This we think pretty good for a starter, and it increased our interest to see more of this herd. Mr. Swezy also shows a four-year old roan cow, Amelia, and heifer calf Ione Second; two-year old calf, Fourth Duke of Yuba; a nine-months bull calf, out of Beauty, weighing eight hundred and thirty-five pounds; Daisy and First Duchess of Yuba, two very promising heifer calves, aged respectively seven and eight months; also, Amelia Fourth, a seven-months calf. The second Duke of Yuba is a yearling, out of Beauty, and by First Duke of Yuba, weighing one thousand four hundred pounds, and we think will be hard to beat in his class; also, Butter Duke, a red and white calf. The above are the representatives of a herd of twenty-two head of thoroughbreds. Mr. Swezy also shows three head of graded cattle, and will show the above, with some additions, at the State Fair. Before leaving Mr. Swezy's exhibition, it is but just that we should remark that but few men, if any, in the State, are entitled to more credit than he for his unflinching perseverance in holding on to his cattle and improving them with the same care when they were considered of no especial value in this State, as he does now, when each animal is worth its hundreds and some its thousands of dollars.

This herd of cattle are of the celebrated Walsh importation. C. G. Bockius exhibits one heifer calf five months old, Nelly Jones, by First Duke of Yuba.

We were then shown the herd of R. F. Sparks, of Yuba, at the head of which stands his magnificent four-year-old bull, Monkey John. This bull is a dark red, and seems to be an especial favorite with all who see him. He is indeed a fine fellow, and will be a very hard competitor to beat in the severe contest that will take place at the ensuing State Fair for the grand sweepstake prize.

Mr. Sparks' herd were all imported last year, and when shown at the State Fair were in very poor condition. It will surprise our cattle men to see the improvement they have made.

Mr. Sparks also shows bull calves, Stonewall, Bismarck, and Alexis, all by Monkey John. As cows, he exhibits Maggie, an aged roan cow; Miss Morgan, a red; Alice, red and white, and calf; Ula Lee, a two-year-old that took the first premium at the State Fair last year in her class; also, Maggie Third and Maggie Fourth. These are the representatives of a herd of seventeen thoroughbreds, owned by Mr. Sparks. Mr. Sparks is an old cattle breeder, and don't know what it is to raise inferior stock, and says he never intends to learn.

The largest cow we ever saw, is a graded animal, five years old, of Durham stock. She has a calf by her side, and is in rather poor condition, but weighs over two thousand two hundred pounds. She is exhibited by General Bidwell.

John McIlmoil, of Sutter County, shows a deep red bull, two years old, called the Duke of Sutter. He is taken out of a herd, and is in poor condition, but shows good points. He also shows a two-year-old cow, Queen of May, and calf, all of the Swezy stock.

HORSES.

There are some good-blooded and well-bred horses in this district. One of the most successful breeders is J. S. Gluckauf, whose place is on the Honcut. He shows a very valuable stable of thoroughbred horses and mares, among which may be mentioned first, on account of her age, and as being the mother of most all the rest, Black Maria, a splendid breeder—the mother of Osceola, who, on Tuesday, ran a mile in 1:45½; also, Trout, a fine four-year-old colt, by Rifleman; and Acrobat, a two-year-old, by Norfolk; and Orient, a splendid sucking colt, by Norfolk. Antelope, also by Norfolk, and out of Black Maria, is a very promising three-year-old. Mr. Gluckauf also shows Pastora, a most excellent breeder, who took the first premium in her class at the State Fair in eighteen hundred and seventy; also, the sweepstake, as best mare of any age. The same year she was shown at Marysville and Chico, and carried off the same honors at both places. Pastor is out of Pastora, and by David Hill—a yearling of great promise. This stable of fine horses have quarters at the State Fair, and will claim some of the honors on that occasion.

G. E. Britton, of Sutter, shows a fine stable of mares and colts. Peerless, by Norfolk, out of Fanny, dam of Bloomfield, is a fine and valuable animal, and won the first premiums as one and three-years-old. Waketa, a two-year-old, same dam and sire, is also a very promising animal, and has also won laurels at the Fairs. But, if Mr. Britton has a runner, we think it is Prudence, a fine sorrel two-year-old filly, by Norfolk, out of Liz Davis.

OTHER STOCK.

There were a large number of mares and colts of good qualities on exhibition, but as the Directors had seen fit to withhold from the cards tacked on the stalls the names of the owners, and as we found no one at any of the stalls to give any information, we are unable to make reliable mention of them. The idea of withholding these names, we are informed, is, that the judges may decide the award of premiums without fear or favor; but the plan, in our opinion, is not effectual. The animals are not examined by the judges at their stalls, but while in the hands of their owners or their employés at the grand stand, and consequently the names of the owners are always known to them before they render their decision. Consequently there are no advantages, but many disadvantages, in this practice, and we hope it will not be continued.

GRAND PARADE.

We were present at the grand parade, on Friday morning, and counted four double teams, seventeen buggies and sulkies, and forty-three horses to halter, and thirty head of cattle.

SHEEP AND SWINE.

G. E. Chittenden exhibited sixteen head of Spanish merino rams and twelve head of ewes, imported this season.

Joseph Glide exhibited four head of each, also imported.

T. Brewer exhibited some twenty head of Cotswolds and graded sheep.

R. M. Sparks shows a boar and sow, and eight head of very fine Berkshire pigs.

AT THE PAVILION.

The exhibition was not large, but was very creditable to those who made it. In the horticultural department Mr. Swezy showed a very fine display of apples, pears, figs, grapes, peaches, raisins, Zante currants, dried figs, etc.

Messrs. Bockius, Blodgett, and Bidwell also, each made a very fine exhibition of fruits and agricultural products.

IN AGRICULTURAL IMPLEMENTS

The show was meagre, but all the articles exhibited were of home manufacture and of great merit. Best & Brown showed their most popular grain separator. Hill & Knaugh showed some of their superior gang plows, and Meyers & Gummow show their celebrated subsoiler, while J. R. Hammer, George P. Hunt, and Hill & Knaugh show some very valuable express, pleasure, and lumber wagons, all of superior workmanship.

SAN JOAQUIN VALLEY FAIR.

We spent only a part of one day at the Stockton Fair, and, although we saw much to comment on and much that would interest our readers, we are compelled to make our notes very short and general, on account of space and time to write them up, the State Fair being upon us. The exhibition of stock was good—as good as at any District Fair we have attended this season. In the horse department, the young colts particularly made a most creditable exhibition, and, as we heard President Doak remark, it showed those who wanted horses where they might come to buy them.

CATTLE.

The exhibition of Durham cattle was also large and good. The large and valuable herd of W. T. Overhiser made a grand show here at their own home. Dr. Holden, ex-President of the society, also showed an excellent herd of some ten animals, at the head of which stood his splendid bull, Blanco, as white as the driven snow. If this animal was a bright red, he would be a formidable competitor for the sweepstakes against any bull in the State; but white, in cattle, though considered as evidence of superior blood in man, is decidedly out of fashion and objectionable. Jesse D. Carr also had on exhibition here two bulls and two cows that he showed at San José. Major Vernon's splendid two-year-old bull, Dandy Jim, put in an appearance here for the sweepstakes.

SHEEP.

San Joaquin County is getting to be one of the foremost counties in the State in the number and quality of its flocks, and, like sensible men, the owners made a most excellent exhibition at the Fair. There were so many excellent sheep shown here it would require an expert with a plenty of time to give an opinion as to which flock possessed the highest degree of merit, and we shall certainly not attempt it.

THE HALL.

In the hall, the exhibition of home-made agricultural implements was decidedly better than at any other Fair we have yet attended. That enterprising firm, Mattison & Williamson, are always on hand when a good plow, a chisel cultivator, or an excellent horse hay fork is to be shown and discussed. Without further comment, we will remark that this fork is not half as extensively used in this State as it ought to be for the good of the hay and grain raisers. It is in reality a labor and money-saving implement.

THE FRUIT

Displayed was also the largest and best we have seen at any of the Fairs, always excepting the one made by the Farmers' Club of Sacramento at their fruit festival. Pecuniarily, we are told, the Fair was a success.

CHANGE OF OFFICERS.

At the annual meeting held during the Fair, a new man was elected President of the society, over the gentlemanly and very efficient gentleman, J. K. Doak, who has been the life and soul of this institution for several years.

Colonel Dorsey, the new President, is a fine gentleman, and when he "learns the ropes," will undoubtedly manage the affairs of the society very successfully; but in agricultural societies, as in everything, it is a good plan to "let well enough alone."

METEOROLOGICAL REPORT.

By THOMAS M. LOGAN, M. D., Meteorologist to the State Board of Agriculture.

Owing to the fact that this report is required before the close of the rainy season, we are prevented from furnishing as completely as is desirable the results of the numerous observations now in the course of construction in various parts of the State. We, however, insert the Table of Rains for Sacramento, up to the time of going to press, for the reasons: First, that we possess the data for so doing ourselves; and, second, that, as a general thing, the rainfall at this place is a better guide for that of the larger portion of the interior of the State than at any other point, either farther north or south.

The real value of this table lies in affording a basis upon which to build up a judgment of the future; and we think we have already arrived to at least one important deduction, to which allusion has been made in former remarks, and which the results of the present season go also to establish. It is this: that in proportion to the amount of rain that is precipitated in the first half of the rainy season, so will the rainfall be in the second half of the season. As is well known, the rainy season commences generally in November, and ends generally with May. There is always an intermission of from two to four weeks, more or less, about the middle of the wet season; or, in other words, the season is divided into the early and the latter rains. In looking over our table, it will be seen that there has been but one year (1850–1), in the whole twenty-four years covered by it, in which the early rainfall was entirely out of proportion to the later. That year was one of drought (only 4.710 inches having fallen), and is in every respect exceptional. But taking the table as a whole, we may safely conclude that if we have much rain by January, we will have also a large proportion afterward. Now, this is a very important deduction, not only from an agricultural, but also from a meteorological, point of view. It not only shows our farmers how to make their calculations with regard to seeding and planting, but it is also confirmed by the scientific fact that in proportion to the surface moisture and evaporation, so also will be the precipitation.

Most of the predications relating to the weather, from Aratus down to Foster, have hitherto been little more than what, in the language of Mr. Mill, would be called "simple connotations;" and it is surprising that after the immense amount of labor bestowed, for more than a century, on daily and hourly records of the weather in all parts of the world, all such connotations have their value in an absolute ignorance of causes and modes of action. Here, after a comparatively brief period (twenty-four years), an insight has been gained into the sequence of phenomena attending our rains, which is in perfect accordance with the well-established theory of their causation, and which is already bearing practical fruit.

RAIN TABLE FOR SACRAMENTO.

Arranged according to the seasons, showing the amount in inches of each month during twenty four years, and for each rainy season.

MONTHS.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.
September	0.250	0.000	1.000	0.003	0.000	sprinkle.	sprinkle.	sprinkle.	0.000	sprinkle.	0.025	0.063
October	1.500	0.000	0.180	0.000	0.005	1.010	0.000	0.195	0.655	3.010	0.000	0.914
November	2.250	sprinkle.	2.140	6.000	1.500	0.650	0.750	0.651	2.406	0.147	6.485	0.181
December	12.500	sprinkle.	7.070	13.410	1,540	1.150	2.000	2,396	6.632	4.329	1.834	4.282
	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.
January............	4.500	0.650	0.580	3.000	3.250	2.670	4.919	1.375	2.444	0.964	2.310	2.668
February	0.500	0.350	0.120	2.000	8.500	3.460	0.692	4.801	2.461	3.906	0.931	2.920
March	10.000	1.880	6.400	7.000	3.250	4.200	1.403	0.675	2.878	1.637	5.110	3.320
April	4.250	1.140	0.190	3.500	1.500	4.320	2.132	sprinkle.	1.214	0.981	2.874	0.475
May	0.250	0.690	0.300	1,450	0.210	1.150	1.841	sprinkle.	0.203	0.981	2.491	0.590
June	0.000	0.000	0.000	0.001	0.310	0.010	0,033	0.350	0.098	1.037	0.017	0.135
July	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.549	0.000
August	0.000	0.000	0.000	0.000	sprinkle.	0.000	0.000	sprinkle.	sprinkle.	0.030	0.000	0.000
Totals.........	36.000	4.710	17.980	36.365	20.065	18.620	13.770	10.443	18.991	17.022	22.626	15.548

RAIN TABLE FOR SACRAMENTO—Concluded.

MONTHS.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.
September	0.000	0.000	0.003	0.004	0.080	0.000	0.006	0.000	sprinkle.	0.000	0.001	0.002
October	sprinkle.	0.355	0.000	0.120	0.480	0.001	0.000	0.000	2.120	0.020	0.210	0.220
November	2.170	0.005	1.490	6.718	2.427	2.426	3.806	0.774	0.850	0.584	1.220	1.930
December	8.637	2.327	1.815	7.867	0.364	9.511	12.850	2.612	1.962	0.971	10.590	5.388
	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.
January	15.036	1.733	1.077	4.776	7.699	3.440	6.036	4.790	1.371	2.075	4.040	1.230
February	4.260	2.751	0.186	0.712	2.010	7.104	3.147	3.630	3.236	1.919	4.740	4.360
March	2,800	2.360	1.303	0.481	2.018	1.010	4.348	2.942	1.642	0.690	1.936	....
April	0.821	1.693	1.080	1.370	0.476	1.805	2.306	1.240	2.120	1.454	0.610	....
May	1.808	0.355	0.742	0.460	2.252	0.008	0.270	0.648	0.270	0.756	0.280	....
June	0.011	0.000	0.087	0.000	0.100	0.000	sprinkle.	0.008	sprinkle.	0.001	0.025	....
July	0.000	0.000	0.000	0.004	0.018	0.000	0.000	0.000	sprinkle.	0.000	0.000	....
August	0.006	0.000	0.085	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	....
Totals.........	35.549	11.579	7.868	22.512	17.924	25.305	32.769	16.644	13.572	8.470	24.052	....

Maximum quantity of rain in each month, minimum in each month, and average quantity in each month, at Sacramento, since 1849.

	January.	February.	March.	April.	May.	June.	July.	August.	September	October.	November	December.
Maximum	15.0 (1862)	8.5 (1854)	10.0 (1849)	4.3 (1855)	2.5 (1860)	0.4 (1857)	0.5 (1860)	0.0	1.0 (1851)	3.0 (1858)	6.7 (1854)	13.4 (1852)
Minimum................	0.6 (1852)	0.1 (1852)	0.5 (1865)	0.0 (1857)	0.0 (1857)	0.0	0.0	0 0	0.0	0 0	0.0 (1850)	0.0 (1850)
Mean	3.5	2.7	3.0	1.6	0.8	0.0	0.0	0.0	0.0	0.4	1.9	5.4

The annexed diagram reveals at a glance the rainfall of each season: the lower segment showing the beginning, and the upper the ending, of each rainy season. As the intermission, alluded to above, does not occur with any well-defined regularity, it cannot be shown graphically; but the relative proportion of rainfall before January to that which follows after will be readily seen; it being borne in mind that there are on an average two months more of rain after January than before that month. Considering that for the length of time meteorologists have been endeavoring, from the accumulated millions of observations on the dry and wet bulb thermometers, on barometers, and on other instruments, to find a saros, or cycle, but in vain, our law or rule, as above stated, assumes comparatively so much the more importance. More recently, an attempt has been made to establish a coincidence of torrential rains with years of maximum sun spots, and it must be confessed that so far the results have been startling. The idea originated from the discovery of Mr. Meldrum, of the Mauritius, that the number of cyclones in the Indian Ocean and the West Indies varies with the sun-spot area. Our observations run through too short a period to afford any positive conclusions, but we here append the following data, in order to enable the reader to form his own opinions as to the value of the application of the conjectured connection, in our instance, between sun-spot and rainfall periodicity:

Maximum sun-spot years	1848	1860	1871
Heavy rainfall	1849–50	1861–2	1871–2
Amount of rainfall	36.00	35.55	24.05
Per cent above average	80	77	12
Minimum sun-spot years	1844	1856	1867
Small rainfall	....	1856–7	1868–9
Amount of rainfall	....	10.44	16.64
Per cent below average	....	43	17

Glancing at the meteorology of this coast in its widest sense, with a view to foretelling the nature of the coming season, as to rainfall, I would direct attention to the following well-established facts. Where the southeast and northeast trade winds meet, and at their southern and northern limits, there are, as is well known, regions of constant precipitation. As the belts of trade winds, and indeed all the wind zones, move south and north with the sun over a space of some one thousand miles of latitude, the northern belt of perpetual precipitation, which in the Summer reaches the latitude of the Columbia River, moves southward in the Fall, till it sweeps over the California coast in our Winter months, and, as the sun travels northward, recedes in that direction, leaving us once more in the dry trade-wind region. According to this general theory, our rainy season comes to us from the north.

Now, whence comes the moisture that is precipitated in this northern rain belt? According to the same general theory just stated, the southeast trades, that sweep over the South Pacific, gather up the moisture and bear it over the belt of northeast trades, as an upper current, and precipitate it as they descend on their northern edge. Our moisture, then, it would appear, is in proportion to the evaporation in the South Pacific; and tracing back the direction of the winds, we find that the moisture that falls on this coast would be gathered up in the vicinity of the Society Islands, in about eight days, as nearly as it can be estimated, before it is deposited here, and, of course, will be directly in proportion to the heat of that region at that time. While thus explaining the relation between the temperature of that portion of the South Pacific just referred to and the rainfall in California, we cannot pretend to utilize the fact, but simply suggest that, when we can be informed in time of the Summer temperature of the Society Islands, we will then have the means of anticipating the rainfall here. If the amount of sun spot will enable us to predict the heat of the coming Summer, it will also enable us to predict the quantity of rainfall, apart from the excess, that might be expected from cyclical influences.

PEDIGREE OF SOME OF COL. YOUNGER'S STOCK.

We deem it but justice to Colonel Younger and the State Agricultural Society, that the following letter, refuting the charges of want of purity of blood in some of his fine herd of Durham cattle, should be published in full in our transactions. Hence we cheerfully give it a place:

SAN JOSÉ (Cal.), January 6th, 1873.

I. N. HOAG, *Corresponding Secretary State Board of Agriculture:*

DEAR SIR: My attention was first called to the charges through the kindness of Mr. Wadsworth, editor of the *Pacific Rural Press*, to a letter from Mr. Thomas E. Talbott, of Dalhoff, Missouri, published in the *National Live Stock Journal* of November last. The *Journal* of that date contains a statement from one of the Vanmeters of Kentucky, with the editor's comments and Mr. T. E. Talbott's letter.

The editor, in commenting on the statement and letter in reference to my stock, says: "One of the Vanmeters, in Kentucky, for instance, stated that a grade cow sold by his father had been made to figure in the foundation of his herd, with a pedigree that did not belong to her, and promised to write out the facts for publication." He then introduces Mr. Talbott, "with the following card concerning other animals entering into the basis of this herd of Colonel Younger." Mr. Thomas E. Talbott says in his letter, after speaking of the pedigree of Kate Hughes: "The breeding and ownership of Madaline Talbott purports to be the same. Now, the facts are these: I never bred or owned either of the cows, neither did I ever own Lucky Lass (the cow that purports to be the dam of these cows), or any other short-horn cow tracing back to imported Young Mary, by Jupiter (2,170)." I will here correct an error the *Journal* has fallen into, and that is, that these gentlemen are speaking of different cows; the cow Lucky Lass is the cow they are both speaking about—the dam of Madaline Talbott and Kate Hughes. I will now proceed to give a history of this controversy as far as I know or am concerned, or have had any connection with it, concerning these three cows.

Mr. Darius Gettings, of Liberty, Missouri, owned Lucky Lass, and sold her two heifers, Madaline Talbott and Kate Hughes, one under two and the other under one year old, to Mr. Milton Dale and Paley Carpenter, for eight hundred dollars, and refused one thousand dollars for Lucky Lass from these parties. That was in eighteen hundred and sixty, I think. They imported them to California the same year. Now, on the twenty-fifth of November, eighteen hundred and sixty-one, Mr. Dale sold Madaline Talbott and Kate Hughes to C. O. Peters. Mr. Peters sold them to me. Mr. Dale delivered to me at the time a certificate of pedigree of Lucky Lass, signed by B. F. Vanmeter, it being the same given to him by Mr. Darius Gettings, of Liberty, Missouri, when he purchased them, and has since made a certificate to that fact.

I will now give a copy of both certificates:

"Lucky Lass, roan, by Wellington, dam Certificate, by Young Prince Albert; gr. dam Crazy Jane, by John Randolph, gr. dam Old Pink, by Goldfinder (2,066), John Randolph, by Goldfinder (2,066), dam Young Phillisis (E. H. B., vol. 3, p. 570). Young Prince Albert, raised by Dr. Watts, of Ohio, was by Prince Albert; he by Walter; dam was Lady Parcton, second dam by Prince Charles Wellington (246), was bred by A. Renich, of Clark County, Kentucky, got by Young Paragon, dam Blossom, by Cossack (3,503); gr. dam Miss Franklin, by Franklin (3,834); g. gr. dam Hanot, by Young Waterloo (2,817); gr. gr. gr. dam by Hero (1,110); Young Paragon, by Ashland (11,122), dam Thames, by Shakespeare (12,062), gr. dam Lady of the Lake, by Reginor (2,505), gr. gr. dam, Rose of Sharon.

"B. F. VANMETER."

"I, Milton Dale, of Yolo County, California, certify that the above pedigree was delivered to me by Darius Gettings, of Clay County, Missouri, as the pedigree of the dam of Madaline Talbott and Kate Hughes, signed by Vanmeter.

"MILTON DALE.

"NOVEMBER 23d, 1872."

Now, the mistake I made was in giving Mr. T. E. Talbott, of near St. Charles, Missouri, the credit of breeding these two heifers, when I had not the remotest knowledge of him; for, up to that time, I had not seen a herd book, or I could have learned who he was.

When I bought these two heifers in eighteen hundred and sixty-one, I asked Mr. Dale who imported Lucky Lass from Kentucky to Missouri. He said he did not know; but either Mr. Gettings or Mr. Talbott, of Liberty, Missouri, did, but was inclined to the opinion that it was Talbott. His reason for thinking so was that Talbott had imported, and he was not sure Gettings had, and thought most likely that Talbott had sold Lucky Lass to Mr. Gettings. When I was making my arrangements to send my pedigrees on for record, I wrote to Mr. Dale for this information, and also Mr. Talbott's given name. He being absent from the State, I got no answer. This very point was discussed between Mr. G. N. Swezy, of Marysville, California, and myself, who was assisting me. He asked what was Mr. Talbott's initials. My answer was that I could not recollect, although I knew him well before I left Missouri. I had been from there since eighteen hundred and fifty-one, and had forgotten. Mr. Swezy said he had seen the name of a Mr. T. E. Talbott in the herd book, and he lived in Missouri, and thought he must be the Talbott of Liberty, Missouri. So we adopted the initials, for the reasons above stated; and Mr. Swezy remarked, if it should turn out to be a mistake, it could be corrected in the twelfth volume A. H. B. Now, this mistake brought out this card of Mr. T. E. Talbott, denying that he ever owned or bred either of these heifers. His statement is true; and it was his duty, as a gentleman, to make it public. I was not aware of my mistake until I had read Mr. Talbott's letter in *The Live Stock Journal.*

I will here say that I knew Mr. John Talbott (for that was his name) for many years before I left Missouri, and no man has left a purer reputation. Mr. Gettings I knew much longer. As an honorable, high-minded gentleman he has no superior. He is still living at Liberty. Mr. Dale and Mr. Peters I have known from their boyhood. They are honorable gentlemen, and stand high in the community in which they live. These heifers and this certificate, coming to me through these gentlemen, knowing them to be reliable in every sense of the word, how could I come to any other conclusion than that this certificate is genuine, and is what it purports to be, the pedigree of Lucky Lass, and she was owned by Gettings, and that she is the dam of my two heifers, and should stand as a fact until disproved. I will now call attention to the fact that the information given by "one of the Vanmeters in Kentucky," to the editor of the *Journal*, was before the November number was published. Now, about the fourteenth of July last I received a letter from Abraham Vanmeter, of Winchester, Kentucky, asking for information about Madaline Talbott and Kate Hughes, and those of similar pedigree. Here is the letter:

NEAR WINCHESTER (Ky.), July 6th, 1872.

MR. COLEMAN YOUNGER, *San José, Santa Clara County, California:*

SIR: Allow me to ask, where and from whom you got the cows or heifers Madaline Talbott, Kate Hughes, and others of similar pedigree, running, as you have them, through Lucky Lass, by Wellington (2,366). Certificate, by Prince Albert Second (857), Crazy Jane, by John Randolph (603), etc. If you will give me all the desired information you know and can get in regard to the pedigrees, and all the persons connected with the pedigrees, and with sending the cows to California, and find out, if you can, where they first originated, I think I can give you some information in regard to them you would like to have, provided you can tell me all you know and can find out about them. Let me hear from you as soon as you can. Direct yours to

Yours, truly, ABRAHAM VANMETER.

This letter was answered within a few days, so he must have got it before the twenty-fifth of July, giving the information asked for, and also a copy of B. F. Vanmeter's certificate of pedigree to Lucky Lass in the letter, with the request to give me any information he could, so if there were any errors, I might get it in time to make the corrections in the twelfth volume A. H. B. You will see from his letter he promised me the information "you would like to have." He has had that letter and copy of certificate since the last of July, and if he has any information "you would like to have," he has kept it from me, or at least given it a singular direction to reach me. Was it the copy of the certificate of pedigree of Lucky Lass that closed his correspondence, and prevented me from getting the information "you would like to have?" Why did he not give me the information he gave to the *Journal*, and also the information he promised to write out and publish? I repeat the question, Why did he withhold that information from me after he had promised it? Was the letter to entrap me? No gentleman with whom I have had the pleasure of corresponding has come so far short of complying with his promise as this same Abraham Vanmeter. He says his father sold a grade cow, and she was "made to figure in the foundation of my herd." Was that cow Lucky Lass? Was she a grade cow? Well, who gave the certificate of pedigree to her? B. F. Vanmeter's name is to it. Now, my conclusions are that he knows nothing about it, or has forgotten. The certificate says she is a thoroughbred cow. Now, if this certificate does not belong to the cow Lucky Lass, owned by Mr. Gettings, what Lucky Lass does it belong to, and was she a grade cow? Will he say this is a grade certificate? I think not. I see in the December number of the *Live Stock Journal* the proceedings of the National Convention of Short-horn Breeders. Mr. Lewis F. Allen, the publisher of the A. H. B., made a speech in vindication of his course in admitting pedigrees to record, and among others that were complained of were these two heifers that Vanmeter wrote to me about. He said: "Mr. Vanmeter, I understand, produced some very fine cattle. A gentleman from California says he has a herd descended from two cows that were said to have been purchased of Vanmeter. Mr. Vanmeter wrote to Mr. Younger, of California, about them, and it appears Mr. Younger had bought them through three different hands. My information was through Mr. Younger, of California, whose letter I have here." Now, what letter was this? It must have been the letter written to A. Vanmeter, for I have not written to any one else on that subject; so Vanmeter must have given Mr. Allen that letter with an explanation, and that was: "Take this letter of Mr. Younger's, and tell that Convention how he got those cows—that other parties have swindled him—but don't say anything about the certificate signed by B. F. Vanmeter. Although copied into that letter, it is a fraud." If Mr. Allen had known as much about it as I did, he would have read the letter and certificate to that Convention; and in justice to others, as well as myself, I think he ought to have done so. I know that Mr. Allen thought he was meting out justice to all parties from the information and explanation I suppose he got from Vanmeter. We here find this same Vanmeter, who was to give me information "you would like to have," withholding, or causing to be withheld, as I suppose, from that Convention, matters that ought to have been before it. Mr. Allen made a mistake in saying that I had said I had "two cows that were said to have been purchased from Vanmeter." I have never intimated anything of that kind. The controversy is about Lucky Lass, the dam of Madaline Talbott and Kate Hughes. This whole matter, sifted down to the bottom, resolves itself into a few questions of fact: Did B. F. Vanmeter give this certificate of pedigree to Lucky Lass? If he did, is the cow Mr. D. Gettings, of Liberty, Missouri, owned, called by that name, the cow meant in that pedigree? Now, if that is true, then the matter is settled in my favor. If this certificate does not apply to her, then what Lucky Lass does it apply to? The certificate says she is the cow. Mr. Gettings gives that certificate to Messrs. Dale and Carpenter as the pedigree of his cow called Lucky Lass, the dam of the two heifers he sold to them. Mr. Dale transferred that certificate to me when I bought them, and but a short time since appended a certificate to the truth of it. While writing this, I received a letter from G. N. Swezy, of Marysville, reaffirming statements made above. Here it is:

MARYSVILLE, December 17th, 1872.

COLONEL COLEMAN YOUNGER:

DEAR SIR: I have recently read a letter from Thomas E. Talbott, of Dalhoff, Missouri, of the date of October twelfth, eighteen hundred and seventy-two, published in the *National Live Stock Journal*, in relation to the pedigrees of your two cows, Kate Hughes and Madaline Talbott, in which he denies that he ever bred or owned them or their dam, Lucky

Lass. That we have fallen into the error of using his name is most likely. You called upon me to aid you in the preparation of the pedigrees of your fine large herd of Short-horn Durhams, for entry in the Herd Book, as you had no knowledge in that line and no volumes of the Herd Book, and I having the only complete set of them in the State. I found your farm-book, showing a complete registry of your breeding, in a most complete condition. You had the pedigrees of most of your stock complete. You had, also, the certificate of B. F. Vanmeter of the pedigree of Lucky Lass, the dam of Kate Hughes and Madaline Talbott. So far we experienced no trouble. A question arose as to who had imported Lucky Lass into Missouri, and consequently bred from her Kate Hughes and Madaline Talbott. You stated to me that Mr. Milton Dale, one of the parties who brought these cows to California, informed you that either Mr. Gettings or Mr. Talbott, of Liberty, Missouri, did, and that he believed it was Mr. Talbott. Neither you nor your wife, although formerly acquainted with this gentleman, could recollect his given name. I therefore suggested that my Herd Books might reveal his full name. Accordingly I took home with me all your papers, etc., and made an examination of the Herd Book. In doing so, I found that the only breeder in Missouri of that name, up to about eighteen hundred and sixty-eight, was Mr. T. E. Talbott, and from that fact believed I had obtained the proper initials of the Mr. Talbott whose given name you so anxiously desired to obtain. This I informed you of, and you with myself justly believed we were correct in adopting T. E. as Mr. Talbott's name. As it turns out the matter can be easily arranged now. You can, as I suggested, when the pedigrees were being forwarded, correct any errors in the subsequent volumes. The error should not have occurred, but we were pressed for time, being anxious to have the pedigrees appear in the eleventh volume, and so did not write to Mr. Talbott himself. You can now write and obtain his correct initials, and learn any other facts you may desire, and make the correction in the next volume. The Herd Book is full of similar corrections. The error does not detract from the pedigrees of the animals; and as there was no intention to wrong any one, no injury was done.

Respectfully, yours, etc.,

G. N. SWEZY.

I will conclude this article by saying that I have other evidence to give, if it was necessary, to substantiate the statements made above.

COLEMAN YOUNGER.

INFORMATION CONCERNING CALIFORNIA.

[Extract from "Special Report on Immigration, accompanying information for immigrants relative to the prices and rentals of land, the staple products, facilities of access to market, cost of farm stock, kind of labor in demand in the Western and Southern States," etc., by Hon. Edward Young, Chief of the Bureau of Statistics, United States Treasury Department, Washington, D. C., 1871, followed by a very timely and valuable explanatory letter by Charles S. Capp, whose official position affords him unusual facilities for obtaining correct information.]

Area, one hundred and twenty million nine hundred and forty-seven thousand eight hundred and forty acres. Population, in eighteen hundred and seventy, five hundred and sixty thousand two hundred and eighty-five.

Can land be purchased or rented in your district suitable for small farms, on favorable terms?

Los Angeles, Santa Clara, San Luis Obispo, San Bernardino, Tulare, Stanislaus, Butte, Shasta, Tehama, Siskiyou, Plumas, Colusa, Sutter, Yuba, Lassen, Napa, Sonoma, and Humboldt: it can.

What is the price per acre of small improved farms? State what proportion has been under cultivation, how much is fenced, and the kind of buildings?

Los Angeles: from twenty-five dollars to thirty dollars; but little of it fenced; buildings inferior; vineyards for sale within the city limits at two hundred and fifty dollars per acre. Santa Clara: twenty dollars to one hundred dollars per acre, according to location and amount of improvements; three fourths of the land is fenced; buildings not very good. San Luis Obispo: no improved farms; until eighteen hundred and sixty-seven the lands in this county were devoted exclusively to grazing; nearly all the good land is covered by Mexican and Spanish grants. San Bernardino: ten dollars to fifty dollars; from one half to two thirds under cultivation; small adobe or frame houses. Tulare: about twenty-five dollars; all inclosed; plain frame dwellings. Stanislaus: very poor buildings, and very little fencing. Butte: eight dollars to twelve dollars for upland; bottom land well protected against overflows by levees, is worth twenty-five dollars; all under cultivation, and with ordinary fences and buildings. Tehama and Shasta: ten dollars; about one half under cultivation, and fenced; buildings poor. Siskiyou: ten dollars to twenty-five dollars; from one half to two thirds under cultivation; generally inclosed; buildings ordinary. Plumas: eight dollars to ten dollars; one half fenced; common wooden buildings. Sutter, Yuba, and Colusa: eight dollars to twelve dollars for upland; twenty-five dollars for bottom land; all under cultivation; buildings of a cheap kind. Lassen: eight dollars to ten dollars; one half fenced; common wooden buildings. Napa: from twenty-five dollars to one hundred an twenty-five dollars; all cultivated and fenced, with buildings of mediu quality. Sonoma: ten dollars to fifty dollars; well fenced; fair buildings. Solano and Yolo: forty dollars to one hundred and twenty-five dollars; all under cultivation and fenced; settlers' cabins. Humboldt: seventy-five dollars; about two thirds of each farm under cultivation and fenced; buildings passably good.

What is the price per acre of unimproved land? What proportion is cleared, and how much, if any, is fenced?

Los Angeles: ten dollars to twenty dollars; no timber. Santa Clara: none for sale. San Luis Obispo: two dollars to fifteen dollars. San Bernardino: from one dollar and twenty-five cents to ten dollars; no timber. Tulare: three dollars. Stanislaus: from five dollars to ten dollars. Butte: three dollars to eight dollars, according to quality. Tehama and Shasta: about five dollars; none fenced. Siskiyou: two dollars and fifty cents to five dollars. Plumas and Lassen: five dollars; no timber. Sutter, Yuba, and Colusa: three dollars to eight dollars, according to quality. Solano and Yolo: ten dollars to forty dollars; no fencing. Humboldt: thirty dollars to thirty-five dollars.

What is the yearly rent of small improved farms? If rented on shares, what share does the owner receive? Does the latter provide stock, implements, or seeds?

Los Angeles: no small farms for rent; the rent of land is from five dollars to seven dollars per acre, or one third the product. Santa Clara: from five dollars to ten dollars; on shares, one half the product. San Luis Obispo: lands can be rented on shares at one tenth of the product for its use. San Bernardino: owner receives one third unless he furnishes stock, seeds, implements, etc., then one half. Tulare, Stanislaus, and Butte: five dollars, or shares as above. Shasta and Tehama: owner provides seeds and receives one half. Siskiyou: the owner provides stock, implements, and seeds, and receives one half. Plumas, Colusa, Sutter, Yuba, and Lassen: the same. Napa and Trinity: five dollars; shares the same as above. Sonoma: on shares, one fourth of the product. Solano and Yolo: ten dollars to twelve dollars per acre; or shares, one third and one half if the owner provides. Humboldt: twenty-five dollars: shares the same as above.

What are the chief articles of production, and what are the present prices of some of them?

Articles of production.	Prices.	Counties.
Wheat, per cwt...............	$1 20	Sonoma, Yolo.
Wheat, per cwt...............	1 25	Tehama.
Wheat, per cwt...............	$1 30 to 1 50	Stanislaus.
Wheat, per cwt...............	1 30 to 1 80	Santa Clara, Solano.
Wheat, per cwt...............	1 35	Butte, Sutter, Yuba.
Wheat, per cwt...............	1 50	Napa, Shasta, Siskiyou.
Wheat, per cwt...............	2 00	San Bernardino, Plumas.
Corn, per cwt.................	1 00	Los Angeles.
Corn, per cwt.................	1 50	San Bernardino.
Oats, per cwt.................	1 50	Siskiyou.
Barley, per cwt..............	1 00	Tehama.
Barley, per cwt..............	1 00 to 1 20	Santa Clara, Solano.
Barley, per cwt..............	1 15	Butte, Sutter, Yuba.
Barley, per cwt..............	1 25	Los Angeles, Shasta.
Barley, per cwt..............	1 50	San Luis Obispo.
Potatoes, per cwt............	2 00	Tulare, Siskiyou.
Hay, per ton	12 00	Butte, Sutter, Yuba.
Hay, per ton	10 00 to 14 00	Solano.
Hay, per ton	15 00	Tehama.
Hay, per ton	20 00	Sonoma, Yolo.

What is the distance to a market town, a railroad station, or a steamboat landing?

Los Angeles: from one to five miles to depot; twenty to steamboat landing. Santa Clara: a railroad runs directly through the county; to San Francisco, fifty miles. San Luis Obispo: to San Francisco, three hundred and twenty miles; to a railroad station, two hundred and fifty miles; tri-monthly communication by coast steamer with San Francisco. San Bernardino: sixty miles to a railroad station; eighty miles to a steamboat landing. Tulare: home market; no railroad or steamboat. Stanislaus: from fifteen to forty miles. Butte: Oroville is the shire town, and the principal market; there is now one railroad, and also a line of steamers, making its terminus at Chico. Shasta: from ten to twenty miles to market town; to steamboat landing, seventeen miles. Tehama: steamboats arrive twice a week from San Francisco. Siskiyou: from five to forty miles. Plumas: eighty-five miles to large market. Colusa: the shire town is located on the Sacramento River. Sutter: Yuba City is the shire town, and the principal market, there being a railroad to the metropolis, as well as a line of steamboats daily, plying to the same point. Yuba: Marysville is the county seat and principal market; there are two lines of railroads and a line of steamers making termini here. Amador: forty-five miles to Sacramento City and Stockton. Lassen: eighty-five miles to a large market. Napa: railroad runs through the entire valley. Trinity: eighty miles to steamboat landing. Sonoma: from one to fifteen miles. Solano and Yolo: five to thirty miles. Humboldt: from five to seventy-five miles. Alpine: forty to fifty miles to Virginia, and seventy miles to Reno, on the Central Pacific Railroad.

What is the general quality of land, and the kind of timber?

Los Angeles: sandy loam on the river bottoms; adobe on the plains. Santa Clara: sandy loam; redwood and oak timber. San Luis Obispo: hilly; valleys small; soil very rich black loam; well watered; timber scarce; scrub pine, white oak, willow, and cottonwood. San Bernardino: soil varied; cottonwood, sycamore, and willow in the valley; pine, oak, and cedar in the mountains. Tulare: quality of land fair; oak timber in belts along the streams. Stanislaus: sandy, with some black loam; no timber except on the rivers. Butte: upland, clayish mixture; bottom lands generally a sandy loam; oak on the level land; pine on the hills and mountains. Shasta: nearly all kinds of soil; white and black oak, sugar-maple, pine, and spruce. Tehama: the general quality of the land is good; oak and pine timber. Siskiyou: generally a sandy loam; sugar-maple, pitch and yellow pine, white and red fir, some oak, juniper, and cottonwood. Plumas: soil second-rate quality; pine and fir. Sutter, Yuba, and Colusa: the upland is of clayish mixture; bottom land generally a sandy loam; oak on the level; pine on the hills. Lassen: first-rate; pine and fir. Napa: land good; timber chiefly oak. Sonoma: varied; oak, and some redwood. Solano and Yolo: limestone, sandy loam, and heavy clay; oak timber. Humboldt: good land; redwood, pine, fir, and Oregon pine.

For what kind of labor is there a demand?

Los Angeles: skilled labor in the city; common labor in the country. Santa Clara, Tulare, Amador, Trinity, and Sonoma: none at present. San Luis Obispo: common laborers and shepherds. San Bernardino: farm hands and mechanics. Stanislaus, Butte, Tehama, Plumas, Colusa, Sutter, Yuba, Lassen, Napa, and Sonoma: farm labor, principally. Shasta: farm and mining labor. Siskiyou: farm labor, carpenters, and men to work in steam sawmills. Trinity: mining. Solano and Yolo: all kinds, male and female. Humboldt: loggers and sawmill men, but the demand is not large. Alpine: woodchoppers.

What mills or factories, if any, are in operation or in progress, requiring skilled labor?

Los Angeles: two grist mills, no factories. Santa Clara: two woolen mills, one paper manufactory. San Luis Obispo, Plumas, Sutter, Lassen, Napa, Trinity, Sonoma, and Humboldt: none of any kind at present. San Bernardino: four steam sawmills, one water-power sawmill, and two flour mills. Tulare: a few flour and lumber mills. Stanislaus: woolen factory. Butte: three flour mills and many sawmills. Shasta: three flour mills, three quartz mills, and ten sawmills. Tehama: three flour mills, and four sawmills. Siskiyou: three steam sawmills, several water sawmills and flour mills, one foundry, and one tub and pail factory. Colusa: two flour mills and several sawmills. Yuba: four flour mills, one woolen factory, and many sawmills. Amador: quartz mills and sawmills. Solano and Yolo: five flour mills, and several manufactories of agricultural implements. Humboldt and Alpine: sawmills.

Are there in your vicinity any railroads or other public works in progress requiring common labor; if so, how far distant?

Los Angeles: one railroad completed, another in contemplation. Santa Clara, San Luis Obispo, San Bernardino, Tulare, Butte, Shasta, Siskiyou, Plumas, Colusa, Sutter, Yuba, Amador, Lassen, Napa, Trinity, Sonoma, and Humboldt: none in progress. Stanislaus: one in the lower part of the county. Tehama: the line of the California and Oregon Railroad is about three miles from the Town of Red Bluff. Solano and Yolo: no railroad in progress of building.

Please state any advantages which your district can offer to laborers, mechanics, or small farmers. Is there much land of good quality and well watered yet unoccupied?

Los Angeles: plenty of land unoccupied, but of poor quality and subject to drought. Santa Clara and San Luis Obispo: no special advantages. San Bernardino: a considerable quantity of public land unsurveyed, containing gold and tin mines. Tulare: plenty of land to be purchased on fair terms, say from two dollars to ten dollars per acre; land in some sections requires irrigation. Stanislaus: quite a large quantity yet unoccupied. Butte, Colusa, Sutter, and Yuba: there is now and for years will be a demand for laborers, mechanics, and farmers, for the country is by no means in an advanced condition, and new developments, requiring all kinds of labor, are being made in all branches of industry; not much land of good quality unoccupied. Shasta and Tehama: there are thousands of acres of unoccupied land in this district suitable for stock raising and fruit growing. Siskiyou: there is some good farming land and much good grazing land in the eastern part of the county. Plumas and Lassen: considerable good land, well watered, unoccupied. Napa: laborers who are inclined to be industrious can do well; farm hands command from thirty dollars to forty dollars per month. Trinity: nothing but mining in the placers. Sonoma, Solano, Yolo, and Humboldt: small farmers can do well. Alpine: the climate is very severe in Winter; snow falls to an extraordinary depth. In Summer it is delightful. At present no inducements whatever can be offered to laborers, mechanics, or small farmers. There is some very fair land, well watered, and nearly the entire county unoccupied. The timber is abundant. The mines in this county are principally silver, but as yet are undeveloped, although a large amount of labor and money has been expended in "prospecting" them.

What are the prices of ordinary farm stock, sound, and in good condition?

Los Angeles: working oxen, per pair, one hundred dollars; working horses, each forty dollars, Spanish stock; working mules, each fifty dollars, Spanish stock; milch cows, each thirty-five dollars, Spanish stock; sheep, two dollars to three dollars and fifty cents each.

Santa Clara: working oxen, per pair, one hundred and fifty dollars; working horses, fifty dollars to two hundred dollars each; working mules, one hundred dollars to two hundred and fifty dollars each; milch cows, fifty dollars to one hundred dollars each; sheep, three dollars to five dollars each; hogs, six cents per pound.

San Luis Obispo: working oxen, scarce; working horses, fifty dollars to one hundred and fifty dollars each; working mules, one hundred dollars to two hundred dollars each; milch cows, sixty-five dollars each; sheep, three dollars each; hogs, ——.

San Bernardino: working oxen, per pair, one hundred dollars; working horses, one hundred and fifty dollars each; working mules, fifty dollars to one hundred and fifty dollars each; milch cows, forty dollars each; sheep, two dollars each; hogs, four cents per pound.

Stanislaus: working oxen, per pair, one hundred and fifty dollars; working horses, fifty dollars to one hundred and twenty-five dollars each; working mules, seventy-five dollars to one hundred and fifty dollars each; milch cows, sixty dollars to seventy-five dollars each; sheep, two dollars and fifty cents to four dollars; hogs, five cents to ten cents per pound.

Tulare: working oxen, per pair, one hundred and fifty dollars; working horses, one hundred dollars each; working mules, one hundred and fifty dollars each; milch cows, fifty dollars each; sheep, three dollars each; hogs, ten cents per pound.

Butte: working oxen, per pair, one hundred and fifty dollars; working horses, two hundred dollars each; working mules, two hundred dollars each; milch cows, forty-five dollars to sixty dollars each; sheep, two dollars and fifty cents each; hogs, five cents per pound.

Shasta: working oxen, per pair, one hundred and seventy-five dollars; working horses, one hundred and twenty-five dollars each; working mules, one hundred and fifty dollars each; milch cows, forty dollars each; sheep, two dollars and fifty cents each; hogs, three cents per pound.

Tehama: working oxen, per pair, one hundred and seventy-five dollars; working horses, one hundred and twenty-five dollars each; working mules, one hundred and fifty dollars each; milch cows, thirty-five dollars each; sheep, two dollars and fifty cents each.

Siskiyou: working oxen, per pair, one hundred dollars to one hundred and seventy-five dollars; working horses, seventy-five dollars to two hundred and twenty-five dollars each; working mules, one hundred and fifty dollars to two hundred and fifty dollars each; milch cows, forty dollars to sixty dollars each; sheep, three dollars to four dollars each.

Plumas: working oxen, per pair, one hundred and fifty dollars; working horses, seventy-five dollars to one hundred and fifty dollars each; working mules, seventy-five dollars to one hundred and fifty dollars each; milch cows, fifty dollars to seventy-five dollars each; sheep, three dollars each.

Colusa: working oxen, per pair, one hundred and fifty dollars; working horses, two hundred dollars each; working mules, two hundred dollars each; milch cows, forty-five dollars to sixty dollars each; sheep, two dollars and fifty cents each.

Sutter: working oxen, per pair, one hundred and fifty dollars; working horses, two hundred dollars each; working mules, two hundred dollars each; milch cows, forty-five dollars to sixty dollars each; sheep, two dollars and fifty cents each.

Sacramento—Working oxen, per pair, eighty dollars to one hundred dollars; working horses, eighty dollars to one hundred and fifty dollars each; working mules, one hundred dollars to one hundred and fifty dollars each; milch cows, forty dollars to eighty dollars each; sheep, three dollars to four dollars each.

Yuba: working oxen, per pair, one hundred and fifty dollars; working horses, two hundred dollars each; working mules, two hundred dollars each; milch cows, fifty dollars to sixty dollars each; sheep, two dollars and fifty cents each.

Amador: working oxen, per pair, one hundred and fifty dollars; working horses, one hundred dollars to three hundred dollars each; working mules, one hundred and twenty-five dollars to four hundred dollars each; milch cows, forty dollars each; sheep, three dollars each.

Alpine: working oxen, per pair, one hundred and twenty-five dollars; working horses, eighty dollars each; working mules, ninety dollars each; milch cows, forty dollars each; sheep, two dollars and fifty cents each.

Lassen: working oxen, per pair, one hundred and fifty dollars; working horses, seventy-five dollars to one hundred and fifty dollars each; working mules, seventy-five dollars to one hundred and fifty dollars each; milch cows, fifty dollars to seventy-five dollars each; sheep, three dollars each.

Napa: working oxen, per pair, two hundred dollars; working horses, one hundred dollars to two hundred dollars each; working mules, one hundred dollars to two hundred and fifty dollars each; milch cows, fifty dollars to sixty dollars each; sheep, two dollars and fifty cents each.

Trinity: working oxen, per pair, two hundred dollars; working horses, one hundred and fifty dollars each; working mules, one hundred and twenty-five dollars each; milch cows, sixty dollars each; sheep, four dollars and fifty cents each.

Sonoma: working oxen, per pair, one hundred and fifty dollars; working horses, one hundred dollars each; working mules, one hundred dollars each; milch cows, fifty dollars each; sheep, two dollars and seventy-five cents each.

Solano and Yolo: working oxen, per pair, one hundred and twenty-five dollars; working horses, one hundred and fifty dollars each; working mules, one hundred and fifty dollars each; milch cows, seventy dollars each; sheep, three dollars each.

Humboldt: working oxen, per pair, two hundred dollars; working horses, one hundred and fifty dollars to two hundred dollars each; working mules, one hundred and seventy-five dollars to two hundred dollars each; milch cows, seventy dollars each; sheep, two dollars and fifty cents each.

Average: working oxen, per pair, one hundred and forty-nine dollars; working horses, one hundred and thirty-six dollars and eighty-four cents each; working mules, one hundred and fifty-one dollars and thirteen cents each; milch cows, fifty-one dollars and seventy-three cents each; sheep, two dollars and ninety cents each.

EXPLANATORY LETTER.

SAN FRANCISCO, December 9th, 1871.

DEAR SIR: Your letter, accompanied by information concerning California lands, was duly received. I notice that most of the prices for farming lands quoted are those in the immediate vicinity of the county seats, and oldest settled and best improved central districts. By going a little distance from the present centers of population, lands can be obtained at more moderate prices, and frequently from the Government at usual rates.

When the quantity of land that is inclosed or uninclosed is considered, it should be borne in mind that what is here called "no fence law," extends over a considerable portion of the State, viz: the Counties of Marin, Stanislaus, San Joaquin, Yolo, and portions of Sacramento, Santa Barbara, Los Angeles, and Merced. (See California Statutes, 1869–70, page 410.) The principle of this law is, that a landowner is entitled to the safe enjoyment of his land without having to guard it by fences, and that the owner of live stock is bound to see that they do not trespass, and is responsible for damages they do. Where land is cheap and timber scarce and dear, the fencing often costs more than the land, and this law was intended to facilitate settlement by poor men by obviating the necessity for this often unproductive expenditure. This law is being extended in its operations at every session of the Legislature, as fast as the purely agricultural interest becomes decidedly stronger than the mere stock-raising interest. Its fairness and economy commenced it. Many miles of our best lands are thus uninclosed, though in a high state of cultivation.

As to improvements upon lands, it should also be borne in mind that many improvements, such as warm barns and sheds for cattle, that are indispensable where snow falls and severe Winters prevail, and where rains during the harvest season and afterwards may be expected, are here to a great extent unnecessary. This is the case in all the large valleys, and everywhere except on the northern coast and in the mountain regions. Cattle and sheep need and receive little or no shelter, but find their own living all the year round. Only those that work are housed and fed. Straw and hay are stacked in the field, and cattle help themselves during the latter end of Autumn, until the first rains fall, when there is a new growth of grass, and as vegetation proceeds actively all through the Winter, they find an abundance of food.

As to buildings, it should also be borne in mind that in California, except in the mountains, where altitude is equivalent to a more northern latitude, the Winter is a mere rainy season, with numerous intervals of fine, pleasant weather. Consequently, Californians are able to, and do, spend a greater portion of the time in the open air than the people of almost any other State. They, therefore, until in prosperous circumstances, do not build such fine houses to keep out cold as are absolutely necessary in the Northern and Eastern States. Cheaper ones answer every purpose, and afford quite as much comfort as more expensive ones. This advantage of our climate operates greatly in favor of men of limited means, as a larger proportion of their capital is available from the first for the purchase of teams, seed, agricultural implements, live stock, and family requirements; and they are thus able to get a new piece of land into a productive condition more cheaply than is the case elsewhere.

In our large valleys, and all except the highest portions of the State, snow seldom falls, or if it does, seldom lies twenty-four hours at a time; and ice very seldom forms. Heavy frosts are also of rare occurrence. Consequently, less fuel is necessary for comfort, and timber is not so indispensable upon farms. Much timber is wantonly destroyed in clearing land for grain culture, even in districts where it is comparatively scarce. Wire fencing is extensively used in the districts where timber is not abundant. It is not very expensive, lasts well, and its place may be supplied before it ceases to be useful by live fences or hedges, which grow finely wherever planted. The cottonwood, willow, locust, and a variety of other trees suitable for fuel, shade, and hardwood, are rapid growers, where planted under favorable conditions. So that even where no timber exists the settler need not be long without it. The mountains and foothills which bound the valleys usually furnish an abundant supply of fuel for the settlers, at very little more than the cost of cutting and hauling; and timber is found along all the watercourses and river bottoms.

Owing to the absence of rain during harvest, and for two months later, no haste is necessary in securing crops of grain when ripe, and no need of shelter for them when cut. Grain is often allowed to stand for weeks after it is ripe—until the harvester and steam thrasher can be secured to cut it. When cut it is thrashed and sacked at once, and then piled up in the field without shelter in perfect security so far as the weather is concerned, and gradually hauled to the nearest railroad or steamboat landing, where it is stored until the market price suits the farmer. Until disposed of, it often serves as the basis of a loan, with which the operations of the succeeding year are extended, improvements made, etc. There is usually no trouble, either in disposing of the crop at San Francisco prices, less freight and commission, or procuring money upon it, if prices at the harvest time are considered to justify the farmer in holding for a rise. The main thing is to have the hauling to the point of delivery completed before the rains make the roads heavy. For these reasons new comers in California are able to dispense with many of the "improvements" upon farms that are absolutely necessary to success elsewhere, whether they lease or purchase lands.

As to prices, lands enhance in value the moment they are occupied. Even without occupation, what was Government land yesterday, procurable at one dollar and twenty-five cents per acre, is worth double that price, or more, the moment it passes into private hands. That is to say, this increase in value is insisted upon by the owners without much regard to difference in quality between what is taken and what is left. Settlement actually increases the value of land in any vicinity, because men usually prefer to have neighbors for themselves and families. Yet other lands a little further off from the nearest town may be fully equal in quality, and settlement will enhance their market and quotable value in the same manner; and the development of the country subsequently by the construction of railroads, etc., may make the more distant lands the most valuable. The successful introduction of some new culture, such as the grape, the mulberry, or the commencement of a manufacture for which facilities exist, will have the same effect. And thus in California, as in other new States, the men who will acccomplish most and succeed best are those whose intelligence enables them to discover for themselves the peculiar advantages of a district which escape the attention of others, and who have the enterprise to secure and develop such locations. Any ordinary farmer can see that a piece of land, the soil of which is deep and rich, and which is level, will make a farm for wheat, oats, barley, or common crops. But the foothill region, where the land is rolling and sometimes steep, is found to be capable of producing a variety of fruits and other products that yield a far larger and more certain return than any land used merely for grain raising. I only repeat the opinion of many of the most intelligent men in the State, when I say that we may expect that before many years the foothill region of the Sierra Nevadas, extending from the plains of the large valleys across the gold-bearing belt and up to the high pine-covered districts, where the climate becomes severe, will be occupied by a dense and prosperous population, and prove quite as productive as the level lands, which now contain the bulk of our agricultural population. Already many of the finest orchards and vineyards are located in this region. The wines produced there are of a superior quality, and the fruits unsurpassed. The silk culture has been successfully carried on, and every year demonstrates more fully the varied capacity and great value of these lands.

Cattle raisers frequently depreciate the value of the Government lands in their vicinity in order to discourage others from settling near them, so that their stock may enjoy free range over the vacant lands around them. Intelligent men are not thus deceived, but able to judge for themselves and form their own opinions. Cultivation frequently changes entirely the appearance of a soil. While cultivated land is covered with green and luxuriant vegetation, the same soil outside of the inclosure, which has not been disturbed, presents a dry and sterile appearance which is very uninviting. What has been done by one settler may be done by others. The dry appearance of our hills and valleys in the Fall is discouraging to new comers from States where the rainfall is greater and distributed more evenly through the year. But if water for drinking is supplied to cattle in such localities, they are found to be fat and thriving, and the dry grass, when examined, is found to be perfectly cured hay, retaining all its natural strength and nourishment, and often rich in seed; and it continues in this condition until rain falls and washes out of it its nutritive properties and causes it to rot. In all our large valleys water is found close to the surface nearly everywhere, and is readily procured by wells; and the regular winds afford power for pumping all that is required for household purposes, watering stock, and garden irrigation. Artesian wells, costing about five hundred dollars each, are also dug without difficulty in many of the valleys that are destitute of running streams in the Fall, and one of these will usually supply all the water that is required upon a farm, the flow being constant and plentiful, without pumping machinery. Everywhere in the foothill region and on the plains below, facilities exist for bringing in water for irrigation, from the never-failing streams supplied by the mountain snows. The ditches originally built to supply the water for mining operations, are now used to a considerable extent for the purpose of irrigation, and will be carried down lower as the demand increases. But every year's experience proves that, though irrigation for some purposes will greatly increase the productive capacity of land, thorough cultivation often renders it unnecessary; and, again, for many crops for which it was formerly supposed beneficial, it is, in fact, unnecessary, if the seed is sowed in time to obtain the full benefit of all the natural rainfall. Grapes and other fruits raised without irrigation are superior in flavor to those supplied artificially with water. Nevertheless, an abundance of opportunities exist for the employment of capital in the diversion of water from its deep natural channels to the surface in districts not well supplied, and its use in irrigation and for manufacturing purposes. The foothill region, which is peculiarly adapted to fruit growing, vineyards, etc., comprises portions of the Counties of Shasta, Plumas, Butte, Sierra, Yuba, Nevada, Placer, El Dorado, Sacramento, Amador, Calaveras, Tuolumne, Merced, Mariposa, Fresno, Tulare, and Kern. Lands of similar quality are found in some of the other counties. Good wagon roads extend through most of this region to the numerous mining towns in the higher districts, and a system of narrow-gauge railroads is now being discussed, which will probably extend through these districts, and thus facilitate the transport of agricultural products, as well as the rich ores which the mines afford, and the valuable timber of the high Sierras.

Improved farms are not rented to the same extent in California as elsewhere. Most of the settlers occupy them as their homesteads, and have no other lands. Comparatively few of the large landholders lease their land for farming, and few or none improve them expressly for the occupation of tenants. Where land is leased, the farming is mostly mere grain and stock raising, requiring few or no expensive improvements by the tenant, or for his accommodation. Again, where private

lands are yet so cheap, and Government lands are attainable at Government prices, and the railroad system in course of construction promises to render them, in a few years, as accessible and valuable as the central lands that are now high, the necessity for renting land and the inducements to do so are less than elsewhere. The great majority of new comers soon see this, and prefer to purchase land of their own. Leases, however, are frequently made with the privilege of purchase, at a fixed price, not greatly in advance of existing rates. This privilege is usually availed of, as the tenant sees that his own settlement enhances the value, and prefers to enjoy the full benefit of his own labor. These leases are sometimes advisable where speculation, in view of contemplated railroads and similar improvements, has not already too greatly enhanced their market value. The rent of land usually represents about ten per cent of the estimated value of the land; thus, in Monterey, good wheat land that sells at from twenty-five dollars to thirty-five dollars per acre rents at two dollars and fifty cents to three dollars and fifty cents per annum.

Mexican grants cover a large part of the best lands in the southern portion of the State. So long as the titles to these grants are in dispute, their boundaries remain undefined. Consequently settlers are often afraid to take up land in their vicinity, though they believe it to belong to the Government, because it is unsurveyed, and for fear that the grant when located by surveyors may be "floated" over their improvements. Recent legislation by Congress was intended to compel the immediate survey of such unlocated grants. Certain defects have rendered it partially inoperative. Amendments will probably be made to remedy these defects, and then the segregation and settlement of the adjoining Government lands will proceed safely and rapidly. The final confirmation and survey of these grants is usually immediately followed by their subdivision. This process soon makes openings for agriculturists; the raising of stock becomes unprofitable as soon as the range is restricted, and soon the agricultural element prevails over the stock raising. The majority of the Spanish and Mexican grants are already confirmed or rejected. When finally confirmed and located, the titles are perfect and desirable. Fine openings for capital exist in the purchase of these large ranchos from the owners and their sale in subdivisions to farmers and small stock raisers.

In conclusion, California at the present time does not present any brilliant inducements to the immigration of men having no capital but their labor, and who are content to remain mere laborers. Industrious, enterprising men, who understand farming, or almost any other useful occupation or mechanical trade, usually find employment without much difficulty, at higher rates than elsewhere, and in a few years lay up capital sufficient to commence business upon a small scale on their own account.

Women, for domestic service, particularly in the country, are in unlimited demand at high wages—from twenty-five dollars to forty dollars per month, according to capacity—and they are always well and kindly treated, and usually marry in a very short time, greatly to the discontent of their employers. But for the practical farmer, possessed of means sufficient to enable him to purchase or lease land, improved or unimproved, or to locate Government land under the homestead or preemption laws, and commence farming on a small scale, no State or Territory offers superior inducements. He can commence operations perfectly assured that a few years spent as industriously as is necessary in agriculture elsewhere, will here surround him with all the necessaries, and many of the luxuries of life, make him secure from want, and the owner of a farm, orchard, and garden that will afford himself and family a competency, and a comfortable inheritance to his heirs. This is plain when we consider the great variety of products and fruits that can be successfully and profitably raised here, that are either precarious, and therefore unprofitable, or cannot be raised at all where the climate is more severe. Most of these new cultures are no longer experimental, but are firmly established as profitable and certain. Orchards, vineyards, mulberry plantations, and cocooneries are everywhere being planted, with a certainty that they will thrive and yield a handsome profit, rewarding the husbandman abundantly for his labor. The success attendant upon all these experiments, upon a large or a small scale, has long since been known to all intelligent men. California is resorted to by agents of French and Italian silk manufacturers to purchase, at high prices, our silkworm eggs (that are healthy and free from the diseases that have threatened to impair this important industry in Europe), as well as all the raw silk we may produce. Our wines and brandies are already commencing to rank with the best produced abroad. Our fruits, both on account of their superior quality and the early date at which they mature, are in request in Eastern markets, even at the high prices which the expensive transportation necessitates. Our wheat is superior in quality and in its capacity to bear transportation, by sea or land, and storage for an indefinite period without damage, to that which is raised in almost any other country, and rules accordingly in the market, and can be raised at a cost which enables it to bear the expense of transportation to the most distant ports.

All the productions of the temperate zone, nearly all of the semi-tropical fruits and plants that elsewhere are mere hot-house exotics, here thrive and yield abundantly. Even the man of moderate means can therefore surround himself and family with luxuries, and ornamental, as well as useful, plants, trees, and shrubbery, that elsewhere entail heavy expense upon their owners and stamp them as men of wealth. The cottages of men of very moderate means in our smaller towns, not only in the valleys, but in the mining regions also, are often surrounded by a patch of garden and orchard, in which will be found not only the ordinary familiar plants of an old Eastern homestead, but the more delicate geraniums, oleanders, fuchsias, heliotropes, verbenas, lilies, bulbous plants, cactus, roses, and a hundred others growing, budding, and blooming in the open air all the year round. In addition to all the ordinary fruits, such as apples, peaches, pears, quinces, plums, and small fruits and berries, may also be found the olive, orange, lime, citron, figs of several kinds, pomegranate, English walnut, mulberry, filbert, tobacco, cotton, sorghum, ramie; and if the owner is disposed to experiment, the list might be extended indefinitely. Thus not only does California offer to the agriculturist a profitable, but also a pleasant and attractive home, in which a family may be reared surrounded by all the influences which will render them contented, healthy, intelligent, and patriotic.

The California Immigrant Union, of San Francisco, is an association formed to promote emigration to California. Its officers have published several pamphlets and other documents containing reliable information concerning the resources and attractions of the State, which are supplied gratuitously to all who apply in person, or by letter, and have been placed in many of the Eastern and European libraries and reading rooms. They also endeavor to facilitate the travel and settlement of new comers, and do not confine their operations to any particular section of their State. No charge is made for any services rendered, and those desiring information concerning California may address the company by letter or otherwise.

CHARLES S. CAPP,
Manager California Immigrant Union.

HON. E. YOUNG, *Chief of Bureau of Statistics, Washington, D. C.*

COTTON CULTURE IN CALIFORNIA.

BY CHARLES S. CAPP.

If cotton had never been planted in California it would be easy to argue by analogy and demonstrate as satisfactorily as is possible by such means, without actual experiment, that the cotton plant could be successfully grown in California.

The record of the thermometer would show that the period between the late frosts of Spring and the early frosts of Winter was sufficiently long and also warm enough to enable the plant to mature its bolls thoroughly before it would be killed by cold. The record of the rain gauge would show that our rains supply a sufficiency of moisture, and at the proper seasons, to meet all the requirements of the plant, while it was not to be feared at the time of gathering the crop, which it might damage or destroy. The list of the agricultural productions of our State would show that Indian corn and other vegetable products, which require about the same soil as cotton, and are usually grown where it is raised, here thrive and produce abundantly, and consequently, that in all probability our soil was also adapted to the growth of the cotton plant. From these facts might also be argued that, as in the cotton-growing States the planter fears rain after the crop commences to mature and before it is gathered, while here, owing to the regularity of our seasons, he could be certain of gathering his entire crop without damage, and therefore all or nearly all of the best quality the soil was capable of producing, the planter in California would enjoy a material advantage over the planter in any of the Southern Atlantic and Gulf States.

If all these facts and the natural inferences from them were admitted, there would apparently only remain for consideration the question of the relative cost of production as between California and the cotton-raising States, to determine whether cotton could be raised here so as to compete with cotton raised abroad; first, in our market, to supply our factories with what the wants of our population required; and secondly, in the markets of other parts of the world. If, upon examination, it appeared that the average price of land thus demonstrated to be suitable to the culture of cotton was here less than that in the cotton-raising States; that for any reasons the amount of cultivation required was less and its cost smaller here than there; that the facilities for transportation to market were equal to and the cost not greater than similar expenses there; that the necessary labor was more certainly available here than there; that the style of agriculture was more improved, and the implements in use better; the home market as good and the foreign markets as large, and the cost of reaching them no greater, or even less, than is the case in the Eastern States, and the facilities for manufacturing the raw material ample—it would seem that the argument was complete, and that capital and labor could be at once invested in the culture of cotton in California without the risk being considered at all dangerous, while the prospect of a satisfactory profit would be so promising that the inducements to such investments would apparently be great indeed.

This argument had been made and elaborated carefully years ago in California. To large numbers of our population who came originally from the cotton-growing States, so far as our soil and climate and cost of land were concerned, the facts were so plain that to them no labored argument was necessary on the subject. They were convinced, and did not hesitate to assert their opinion, that California was naturally a cotton-raising State. Indeed, if California had not been admitted to the Union as a free State there can be no doubt that long ere now we would have had large numbers of cotton plantations, worked by slaves brought here from the Southern States by men who were able to discover the superior advantages of our soil and climate for cotton culture. The only question that remained in their minds was, whether its cultivation would be profitable, considering the condition of our labor supply and the rates of wages? Prior to the late civil war they considered it impossible for California to compete with the slave labor of the South. During the war they believed that at its conclusion the old condition of affairs would be resumed and the cost of production again return to its former low level, and that consequently, as the high war prices of the staple were only accidental and temporary, there was not sufficient inducement to planters to make the investments necessary to the business here. After the war had closed and the slaves were freed, they still believed that the labor question there would shortly be arranged upon some basis that would enable Southern planters to make the negro labor available upon terms as cheap as formerly, the planters no longer being compelled to support the children who were too young and the aged who were too infirm to be useful, or else that their places would be supplied by Chinese labor imported for the purpose, as movements with that object in view were then proposed and set on foot. Perhaps also a species of patriotism led some of them to desire that the South should not lose the superiority in cotton production which it had previously enjoyed, and rather to prefer that attempts to introduce it elsewhere should not succeed, and with such the wish was father to the thought. That such views were extensively entertained in this State by men whose opinions we were accustomed to receive with great consideration, is evidenced by an examination of the reports of our State Agricultural Society at that time. These considerations will account for the delay in the investment of capital and labor in the culture of the cotton plant, for which apparently our soil, climate, and other conditions were so admirably adapted.

DISCOURAGEMENT OF COTTON CULTURE.

But when the argument, of which the foregoing may be taken as a brief and imperfect outline, was made some years ago in California, those who made it were met by a series of objections founded upon some of the peculiarities of our climate and vegetation, which, it was contended, would render it impossible that cotton culture could ever become important or profitable in this State. Mere theories were advanced in a plausible manner, stated in a taking semi-scientific form, occasionally backed up with assumed facts, many of which would not bear scrutiny, and by quotations from authorities which applied to conditions different from those existing here, and usually wound up by mingled prophecies and opinions that the Southern Atlantic and Gulf States alone possessed all the requisites necessary to insure complete success in cotton culture, and consequently were secure of a natural monopoly of the business, and that as the English had failed to render themselves independent of America by cotton raising in India, so the attempt to establish the culture in California would fail for the same or similar reasons. These theories were apparently adopted by some of the leading members of our State Agricultural Society, and set forth in its annual reports; and although the State Legislature, disregarding theories and looking only at facts, was then wisely offering liberal premiums for the encouragement of the cotton culture, they operated strongly to discourage all investments in the business, and doubtless delayed its introduction several years longer than otherwise would have been the case.

Two of the most important of these efforts, which, notwithstanding their disclaimer of any such object, were apparently made to discourage the introduction of this industry, and that were given to the public here and abroad with the indorsement of our State Agricultural Society, were the following: A Report of the Committee on Awards at the State Fair of Eighteen Hundred and Sixty-three, who examined the samples of cotton there on exhibition (Report State Agricultural Society, 1863, p. 92), and who, after venturing to predict the condition of affairs that would exist at the South when the civil war, then still raging, was closed, summed up as follows:

> "Thus it is seen that the inducements to cotton culture in California are of a temporary rather than permanent character, and will be withdrawn entirely with the resumption of industrial pursuits in the disturbed districts of the cotton-growing States. Neither is California more favorably situated by reason of climate than by lack of labor facilities, for the growing of this fiber. Cotton requires a warm, moist climate for its most successful production, and, on the phenomena of humidity, the growing and ripening season of our State is the very reverse of that of the cotton States."

Then follows a disclaimer of any intention to discourage the experiments in cotton culture in California.

The second was an essay on the textile fibers of the Pacific coast, by the late Wilson Flint, a very intelligent and public-spirited gentleman, who took a lively interest in all agricultural questions, and was at that time by many regarded as good authority upon such topics, and to whose enterprise and exertions in other directions the State is largely indebted for a portion of the advancement already made. This was published in the report of the State Agricultural Society for eighteen hundred and sixty-five. In this essay he professed to describe the adaptability of the soil and climate of the Pacific coast portion of the United States for the growth of textile fibers, and denied their capacity for the purpose. From his general condemnation of the climate of the Pacific coast, as not adapted to cotton culture, he allowed the possible exception of a portion of the southern counties of California. But he laid down the same general law as announced in the report of the committee already referred to, *i. e.*, that the success of cotton culture depended upon an abundant precipitation of dew during the maturing

the cotton bolls, and which was necessary to their opening; and as t
main characteristic of the climate of California was its aridity, he argu
that the culture of cotton in this State must necessarily fail for th
reason. Irrigation to supply moisture during the dry season, he di
missed without consideration, in a couple of brief sentences, as "
objectionable mode of supplying a deficiency in nature," while adm
ting that it might be practicable in California, where facilities for irrig
tion existed. He also condemned the adaptability of the climate of th
State for the culture of all fibrous plants, by alleging the importa
discovery, made by himself, that plants which elsewhere produced su
fiber abundantly, here produced little or none, and were, therefor
worthless! This alleged discovery, like many others that are frequent
supposed to be made, would have been very important, if true.

Fortunately, however, for California, one rule is the same here
elsewhere, viz: that one fact is worth a thousand untested theorie
and in the case of cotton culture, the facts are, that all adverse theori
to the contrary notwithstanding, cotton has been, and can be, succes
fully and profitably cultivated in this State, as will appear hereafte
And his supposed discovery that other plants that produce valuab
fiber elsewhere, fail to do so in this State, has also vanished into th
air, since confronted by the facts of the successful cultivation and pr
duction of fiber from the ramie, New Zealand flax, the ordinary flax
the Eastern States, hemp, the maguey, and a variety of similar plan

CAUSES OF FAILURE ELSEWHERE DO NOT EXIST HERE.

If the question whether the soil and climate of California we
adapted to the successful culture of cotton was to be determined
reference to the text books upon this subject, there could be no dou
that as to large portions of the State the decision would promptly
given in the affirmative. The failure of the efforts to introduce t
culture of the American cotton plant in India was owing to a gre
variety of causes which do not exist in this State. For instan
the tenure of land was there different, being held by the native pop
lation at a fixed rental, which, owing to their distrust of the Engli
Government, they believed would be increased if the cultivation of t
American plant was successfully established. The improved Engli
and American agricultural implements were too costly for so poor
population. The American machinery for separating the seeds fr
the fiber was also too expensive for the natives to purchase; it was n
well adapted for cleaning the short Indian staple; and the natives we
prejudiced against the use of labor-saving machinery, the adoption
which might leave them idle for a large part of the year. The amou
of cotton picked, or other labor performed by the natives, was ridic
lously small, compared with that accomplished by American field han
The good faith of some of the American planters employed to intr
duce the culture there was seriously doubted, while those who we
most active and persevering were constantly hampered by lack
funds, the difficulty of overcoming or the fear of encountering t
obstinate prejudices of the natives, and the necessity of obeying orde
of Boards of Directors and local officers unacquainted with the bu
ness, under whose orders they were placed. The climate was al
exactly the reverse of the American cotton-growing regions.—Madras
America, a Hand Book to Cotton Cultivation, by J. Tallboys Wheeler.

In California the land is owned by the class who will be likely to engage in cotton culture. They are able to purchase and accustomed to use the most improved agricultural and cleaning machinery. The labor available is accustomed to or readily adapts itself to American habits and modes of culture, and the climate, where it differs from that of the Southern States, therein possesses a decided advantage.

A few statements concerning the cotton plant, from these authorities, will better enable those not already well acquainted with the subject to form correct conclusions upon the suitableness of the climate of California for cotton culture. I quote from the same work:

THE FOUR SEASONS OF THE AMERICAN COTTON PLANT.

The American plant, like all other plants, must have four seasons, viz:

First—Spring, or the season of germination, when but a moderate supply of moisture is required.

Second—Summer, or growing season, which calls for more liberal supplies of moisture.

Third—Autumn, or ripening season, which requires little or none.

Fourth—Winter, or season of rest.

HABITS OF THE AMERICAN COTTON PLANT.

First—In average seasons, the New Orleans cotton plant requires from six to eight weeks from the date of sowing to that of coming into flower, and about the same length of time from the fall of the blossom (which occurs in a few days after its appearance) to the opening of the pod.

Second—That rainy weather, or even a dark, cloudy, damp atmosphere, whilst the crop was maturing, has a tendency to prevent the boll from opening at the proper time; and if the opening of the bolls is checked, the cotton becomes more or less deteriorated, varying in degree according to the intensity of the deteriorating cause, from absolute destruction to simple adhesion of the fibers or to mere slight discoloration.

Third—That the prevalence of rainy weather during the period of growth promotes luxuriance and productiveness, provided that the drainage is free, and provided, also, that this humidity is exchanged for clear, bright weather at the season for maturing the crop.

Dr. John William Mallet, in his work on the Science of Cotton Culture in portions of the United States, says:

> "Cotton needs a high Summer temperature, although not properly a tropical plant. It produces fiber in diminished quantity, though of improved quality, when removed from a southern locality to one further north. It never seems to be injured by the most intense mid-day heat. Where other crops, including even Indian corn, are drooping under a blazing sun, the large, succulent-looking leaves of a cotton field will seem to enjoy the congenial atmosphere. As is said by the writer of a pamphlet published by the Cotton Supply Associates, 'cotton is decidedly a sun plant.'"

When we carefully examine the foregoing propositions, the truth of which will be conceded, it is evident that, provided irrigation, where necessary, will take the place of the Summer rains of the Southern States, the seasons of California meet the requirements of the cotton

plant. That the period between the later frosts of Spring and the earl
frosts of the Fall, in California, are longer than are absolutely require
for the complete maturity of the plant and its bolls, and if, as is th
case, the rains are still withheld after the bolls are matured, this lengt
ening of the period during which the raw cotton may be picked withou
injury insures the saving of a larger percentage of the crop in a
undamaged condition than is usually possible in the Southern State
Besides this, the absence of rain during a large part of the growin
season, by preventing the germination of grass and weeds, allows th
cotton plant to appropriate the entire strength of the soil to itself, gro
unchoked, and at the same time materially reduces the amount of labo
necessary in its cultivation, and consequently the expense. For a su
plant, the clear, bright, cloudless Summer skies of our California valley
would also seem to be peculiarly adapted to favor its luxuriance o
growth and productiveness, which also proves to be the case. It woul
therefore, appear that what moisture is derived from the rainfall in Cal
fornia is naturally well distributed, at least for the starting of the plan
and the gathering of the crop, and the only open question is whethe
irrigation will supply the absence of rain or heavy dews during th
growing season. On this point it might be sufficient to say that alon
our river bottoms the moisture that is condensed nightly at the seaso
when hay is cut, and while the cotton plant is maturing, is at least s
great that hay cut the day before often cannot safely be stacked unt
the sun has been up several hours to dry it—say until nine or ten o'cloc
in the morning. Away from the rivers this is not always the case.

Mallet says:

> "'The proper supply of moisture' is a point of at least equal impor
> ance with temperature, and here appears undoubtedly to be the mai
> difficulty hitherto experienced in attempts to extend the culture of co
> ton into new regions. Published statements differ greatly as to the effec
> of moisture or dryness upon the plant; some writers affirming that
> wet season is ruinous to cotton, and that drainage is of the first import
> ance; while others, especially many of those treating of cultivation i
> India, insist that irrigation is more necessary than any thing else. D
> J. Forbes Royle, in his work on the culture and commerce of cotton i
> India and elsewhere (p. 223), well says: 'Such terms as moisture an
> dryness are so entirely comparative, that in one country we hear th
> cotton plant described as one requiring moisture, and in another we fin
> it stated that no plant requires so little. The fact being that the plan
> can bear both great heat and considerable want of water, provided it i
> growing in a not over-dry atmosphere.'"

Mallet describes four conditions in which moisture may exist abou
the plant and supply it. First—In the condition of vapor in the air u
to the point of saturation. Second—The air may be super-saturate
when rain will fall. Third—The soil may contain more or less moistur
absorbed from the air, without being actually wet. Fourth—The soi
may be wet with liquid water as by excessive rain or want of drainag

He gives as his opinion, that "It would seem that the larger th
relative amount of water in the first and third of these forms taken u
by the cotton plant, and the smaller the quantity received in the secon
and fourth forms (at least during the greater part of its period o
growth), the more favorable will be the result."

In water-soaked soil, cotton will not thrive. The following statements from the pamphlet on the cultivation of Orleans staple cotton, published by the Manchester Cotton Supply Association (p. 14), are borne out by the general experience of planters. "The tap root of the cotton plant will not strike down into wet soil. On wet land the cotton grows small, looks sickly or scalds in the hot sun, it bears but little raw cotton, and takes twice the labor to cultivate it, as the grass usually grows the faster around the plants and is much more difficult to kill out. Such soil will obviously be benefited by draining. On the other hand the state of things demanding artificial irrigation—very necessary probably in some parts of India—would seem to be simply the absence of water in any one of the three other conditions noticed.

"In the early stages of growth the plant receives a more moderate supply of rain, *i. e.*, water in the second condition named with advantage; but even then heavy rains are very injurious, and later in the season they are absolutely destructive; the bolls do not open, but fall off or rot upon the branches; a surface growth of grass and weeds accumulate so rapidly as to choke the crop; 'the boll worm' and other destructive insects make their appearance, and the cotton from such bolls as are already open hangs out in trailing locks, draggled, dirty, and matted together. Dry years are emphatically those of the largest and best crops. Yet like all other plants cotton must be supplied with moisture; this even seems to be demanded in considerable quantities, judging from the extensive leaf surface from which evaporation is carried on. Aqueous vapor in the air, as suggested by Dr. Royle, and abundant hygroscopic moisture in the soil itself, as I would add, seems to be decidedly the sources from which this requirement is to be met." He concludes that the cotton soil of Alabama possesses all the qualities necessary to supply these requisites, which of course follows from the successful cultivation of the plant there.

THE PROBLEM FOR CALIFORNIA COTTON GROWERS.

Elsewhere he says that the sandy soils produce the best crops in wet years, while the "black lands," which correspond nearly to our adobe soils, produce the best crops in dry years. The problem for California cotton planters to solve would therefore appear to be simple. It is, since any of our years would be considered dry years in the Southern States, if possible, to endeavor every year to bring their light sandy soils into the same condition as similar soils in wet years in the Southern cotton-growing States, and their adobe and alluvial soils into the same condition as similar soils in dry years in those regions. That this can be done by judicious and timely irrigation will hardly be questioned by those familiar with this use of water. In many localities in California irrigation will seldom if ever be necessary; but if, with or without it, the foregoing conditions can be established, then every other requisite of a good cotton-growing climate already exists.

The question of suitable soil would then be the only one remaining open. Upon this point, any one who will read Dr. Mallet's description of the cotton lands of the South will be entirely satisfied that the breadth of soil in California that is well adapted to cotton culture is great indeed. Of light sandy soils we have an abundance in our broad valleys. Along the river courses are immense bodies of as rich alluvial soil as can be found in any part of the world. Our adobe lands correspond almost exactly to his description of the black lands of the South which he regarded as "a normal cotton soil."

From what has thus been said, as derived from some of the best published authorities upon the subject of cotton culture, it appears, theoretically at least, California is naturally a good cotton-growing State in point of climate and soil, judicious irrigation being able to supply any deficiency of moisture existing during the season when the plant is growing, and before the bolls are formed and ripening.

Fortunately cotton culture in this State has long since passed through the period when its introduction depended upon mere theories. It has also passed through the experimental stage. In the large districts, comprised within the San Joaquin, Tulare, and Kern Valleys, which are sufficient to enable California to equal the yield of some of the largest cotton-producing States of the South, it is now in the third stage, when success being assured, capital and labor are being largely invested in the business, which is in course of being established upon a broad and permanent foundation. The present year will probably largely increase the area upon which this certainty of success will be established, and California will then take an acknowledged position in the list of cotton-growing States, while the crop will be regarded as more profitable than many others now extensively raised, and its cultivation attended with no greater risks or uncertainties, as the fixed character of our seasons indicates.

RESULTS OF COTTON CULTURE.

The results of the successful establishment of the cotton-growing industry in California can hardly be estimated. Some of them may, however, be stated as follows: It will greatly increase the value and productiveness of our valley lands. It will supply a very desirable rotation of crops, and thus improve our agriculture, and preserve unimpaired the fertility of the soil, which constant cropping in wheat has, in many cases, diminished. It will encourage the reclamation of our overflowed lands to increase the breadth of land adapted to this culture. It will furnish a sure crop for our dry years, when grain crops cannot be depended on, or would be diminished to a point below the cost of production. It will afford more constant employment to labor, and particularly at the close of the grain harvest, when cotton picking commences. Raw cotton will be a new article which will bear the cost of transportation and export to all parts of the world. It will encourage the establishment of factories for the manufacture of cotton goods sufficient for our own consumption, and that of the rest of the Pacific slope, and also to enter into our growing commerce with Asia, Central and South America, and the islands of the Pacific. This will afford additional employment to our laboring population, and attract hither large and valuable additions from other States and countries. These classes in turn will be additional consumers of the grains, fruits, and wines produced by our agriculturists, and enhance the profits of the producers. It will annually attract hither a larger fleet of steamers and sailing vessels, thus securing additional and cheaper transportation for our superabundant grain crops. It will encourage and hasten the construction of railroads to portions of the State not yet supplied, and thus extend the area o land which may be profitably cultivated, not only in cotton, but in othe crops as well. It will increase the amount of our taxable property, an thus diminish the rates of taxation, attracting hither large amounts o capital from abroad for temporary use to move and handle the crop, and for permanent investment in its production and manufacture.

Considerations such as these constitute reasons sufficient to induce every public-spirited Californian to do all that lies in his power to encourage and hasten the development of this new industry within our borders. But, as the question of satisfactory profits will after all determine whether the necessary investments of capital are to be made, an examination of that question is yet required. Upon this point, there can be little difficulty in coming to a favorable conclusion. This branch of the business has already been carefully examined by numerous practical business men, and the facts and figures obtained are such as establish that the profits which may be expected to be realized, are sufficient to amply justify the investment of California capital, and certain very shortly to attract hither cheaper money from abroad.

It has been found that the staple produced in this State is superior to the great bulk of the production of the Southern States. That a far larger proportion of any single crop will be secured in a perfect condition, and, therefore, rate as of the higher grades, than is the case in the Southern States, where the crop is subject to damage by rain. Cotton, where it requires any irrigation at all, requires less than half the quantity necessary for the production of Indian corn. The expense of the cultivation of cotton does not exceed that of the cultivation of corn, or other grains which are regarded as profitable crops, while the value of the product is vastly greater. The cost of transportation of a cotton crop is a mere fraction of that of a quantity of grain of equal value in the market. While cotton, save only in the most exceptionally favorable years, could never be raised in the Southern States for less than twelve cents per pound, here, owing to the smaller amount of labor required in the culture, the cost will not exceed six or seven cents per pound, after land which originally requires clearing has once been reduced to cultivation. The cost of the manufacture of cotton here, owing to our ample and available water-power, will not greatly, if it at all, exceed the cost elsewhere, and the difference, if any, will be fully covered in the saving of freight and interest, whether the goods made are for home consumption or export to the markets that lie just beyond our doors.

To insure safety and a profitable return for investments in this business, it is, therefore, only necessary that it shall be ascertained that the locality selected for both the culture of cotton and its manufacture in California, shall be such as are already proven to possess a climate and soil adapted to the culture on a scale large enough to supply the factories, ample water-power, or supplies of fuel for steam machinery, facilities for the cheap and rapid transportation of both the raw material and the manufactured article to the market in San Francisco, and that the active management of the business shall be placed in experienced, competent, and trustworthy hands.

To make it apparent that all these conditions actually exist in this State, and that the culture of cotton has passed beyond the stage of experiment, and is already successfully established among the other industries of this State, the following history of the cotton culture in California, compiled mostly from official sources, has been prepared, together with views and statements upon matters connected with both branches of the business, heretofore made and published by practical and reliable men, who have either personally tested it, or carefully examined the results obtained in the experiments of others:

EIGHTEEN HUNDRED AND FIFTY-SIX.

The third Fair of the State Agricultural Society was held at San José, in Santa Clara County, in October, eighteen hundred and fifty-six. The premiums offered for cotton culture that year by the State Agricultural Society were (p. 62): "For the best acre of cotton, seventy-five dollars; for the second best acre of cotton, twenty-five dollars."

In the annual address delivered by the President of the Society, E. L. Beard, only the following casual mention of cotton culture occurred (p. 23):

> "In the successful cultivation of tobacco, cotton, rice, and sugar, our experiments, thus far, have been very limited; but, such as they are, they leave no room for doubt that in a short time we shall be able to supply our own demand, besides producing a surplus for export."

The Visiting Committee of the society, who had traveled over a large part of the State to observe the progress and condition of agriculture in the different districts (at p. 20), said, when speaking of the farm of F. W. Gibson, at the Monte, in Los Angeles County:

> "Here we saw a small patch of cotton which promises to be of an extra quality. Had there been a whole acre of it, we doubt not it would have been found worthy of the first premium of seventy-five dollars. But, notwithstanding the lack of quantity, we regard the quality of the crop as entitling Mr. Gibson to a special premium."

On page fifty-two of the report for that year, we find there was awarded "to F. W. Gibson, for one-eighth acre of cotton, a framed diploma."

EIGHTEEN HUNDRED AND FIFTY-SEVEN.

The fourth annual Fair of the State Agricultural Society was held at Stockton, in San Joaquin County, in September, eighteen hundred and fifty-seven.

In the annual address before the society, delivered by Mr. Henry Eno (p. 115), he said:

> "The cotton plant, which is to the Southern States what our gold field is to California, can be grown everywhere, from Shasta to San Diego, and if the old-fashioned spinning wheel was now in use, a sufficient quantity could easily be raised for home consumption."

The Committee on Awards, on sugar cane, cotton, and tobacco (page 55), reported as follows:

> "The committee also examined the several specimens of cotton, and, as with the cane, we have to report the successful growth of this great staple. We also examined in contrast Georgia Upland cotton, and the growth of this State from seed taken from the same parcel, and the improvement in fineness of fiber of the native growth over the imported or Georgia grown, was manifest and striking; and in this we have the

concurrence of experienced spinners from the East. But the staple of the native is not quite so long though fully as strong as the Georgia cotton. This we attribute altogether to the lack of moisture in the earth where it grew.

"We believe it is a reasonable calculation that when our bottom or swamp lands shall be sufficiently diked to keep out the Spring and Summer floods from them, we shall be able to produce an article of cotton, not only of finer texture, as is the case now on our dry lands, but one of superior length of staple—the two qualities that make a first-rate article.

"Several other samples examined rate as 'fair upland.' The one from the Slocum's Bridge has the advantage of staple and texture over any of the others. The samples grown in Los Angeles County are equal if not superior to the best Mississippi or Louisiana cotton, and of course superior to all others, and but one grade below Sea Island cotton. This sample is not of the Sea Island seed, but of the Gray Petit Gulf kind, proving conclusively the perfect adaptation of our climate and soil to the production of the very finest staple.

"The last mentioned specimen of cotton is in the name of Mr. Gibson, represented by Mr. Osborne. It was grown on a loose soil. There being no number to refer to we have given the name, and recommend the premium to be awarded to Mr. Gibson, for the best specimen of cotton.

"(Signed:) WM. WALTHAL,
S. McLEAN, } Of the Committee."

The premium was a framed diploma.

This cotton was probably some of that raised the previous year, which the Visiting Committee of that year had only seen before the crop was matured.

During this year, also, mention was made in the San Francisco papers of fair samples of cotton exhibited and grown in Shasta County.

EIGHTEEN HUNDRED AND FIFTY-EIGHT.

The Fair of the State Agricultural Society for eighteen hundred and fifty-eight was held at Marysville, in Yuba County, in August. In the opening address, by Mr. John C. Fall, he said (page 52):

"The attempts recently made for the cultivation of cotton, rice, and tobacco have demonstrated the adaptation of our climate and soil to the production of these great staples."

The premiums offered for cotton culture were:

"Cotton, one quarter acre, more or less: first, plate, value twenty-five dollars; second, plate, value fifteen dollars; third, diploma; fourth, a book."

Apparently there was no exhibition, competition, or premium awarded.

EIGHTEEN HUNDRED AND FIFTY-NINE.

The Fair of the State Agricultural Society for eighteen hundred and fifty-nine was held at Sacramento, September thirteenth. Premiums were offered at this Fair as follows, (p. 125):

"Cotton.—First, one acre or over, fifty dollars; second, one acre or over, twenty-five dollars. First, bale of cotton, twenty-five pounds, silver cup (twenty-five dollars); second, bale of cotton, twenty-five pounds, silver cup (fifteen dollars)."

No entry for these premiums were made.

At page forty-two is the following mention of a cotton plant that was on exhibition, probably taken from the *Sacramento Union:*

"COTTON PLANT.—W. Scott, Rosedale.—This is a superior specimen, for California, of the great staple of the Southern States. It is pronounced by good judges a fair growth of the plant. The bolls are good sized and healthy. The roots look thrifty. It is, of course, earlier than the Eastern plant, owing to our climate."

The Committee on Fibers (p. 270) reported as follows:

"That cotton, to the amount of twenty-five pounds, as required by the society's regulations, is not on exhibition, but samples of that plant, with cotton in the boll, are exhibited by Mr. William Scott, of Rosedale, and E. B. Crocker, of Sacramento. The luxuriance and apparent health of both specimens would indicate a superior soil and climate for its cultivation."

EIGHTEEN HUNDRED AND SIXTY.

The annual Fair of the State Agricultural Society for eighteen hundred and sixty was held at Sacramento.

In the opening address, by Mr. T. G. Phelps, the President, he merely mentions the reclaimed tule lands as suitable for the culture of cotton and other products, (p. 201.)

The premiums offered for cotton culture were:

"Best cotton, one acre or over, plate, value, fifty dollars; second best cotton, one acre or over, framed diploma."

In the report of the Visiting Committee, (p. 74), the farm of F. M. Gibson, at the Monte, in Los Angeles County, is mentioned, but nothing said of his having grown cotton there that year.

EIGHTEEN HUNDRED AND SIXTY-ONE.

The State Agricultural Society, at its Fair for eighteen hundred and sixty-one, held at Sacramento, offered premiums for cotton culture, viz:

"Best cotton, one acre or over, goblet, value, twenty-five dollars; second best cotton, one acre or over, Farmer's Encyclopedia."

No mention of cotton on exhibition was discovered in the report.

The San Joaquin Valley Agricultural Society, this year, offered:

"For the best fifty pounds of cotton, twenty dollars."

EIGHTEEN HUNDRED AND SIXTY-TWO.

Report not examined.

EIGHTEEN HUNDRED AND SIXTY-THREE.

The State Agricultural Society's Fair for eighteen hundred and sixty-three was held, as usual, at Sacramento. The Legislature, in the Spring of this year, had adopted the policy of offering liberal premiums for the encouragement of agriculture and domestic manufactures.

In the opening address, by Hon. Leland Stanford, (p. 48), it is mentioned that fifteen thousand five hundred dollars were offered by the State, in different forms, for the production of cotton plantations and growth of cotton.

The Act of the Legislature for the encouragement of agriculture and manufactures in California, approved April twenty-fifth, eighteen hundred and sixty-three, offered the following State premiums in relation to cotton (p. 27):

Article.	Premium.
For the first one hundred bales of cotton of three hundred pounds each	$3,000
For the same quantity produced in the first, second, and third succeeding years, two thousand dollars, one thousand dollars, and five hundred dollars respectively	3,500
For the first one thousand pieces of cotton drilling, forty yards each	2,000
For the first one thousand bales of cotton drilling, one thousand six hundred yards each	4,000
For the first one hundred pieces of calico, thirty yards each	500
For the first one thousand pieces of calico, thirty yards each	1,000
For the first one hundred pieces cotton shirting, forty yards each	1,000
For the first one thousand pieces cotton shirting, forty yards each	1,000
For the first one hundred pieces cotton sheeting, forty yards each	1,000
For the first one thousand pieces cotton sheeting, forty yards each	1,000
For the first plantation of cotton of not less than ten acres, in bearing, of good staple	1,000
For the first fifty acres, in bearing, of good staple	2,000
For the first one hundred acres, in bearing, of good staple	3,000
For the first plantation of tree cotton, of not less than ten acres, in bearing, of good staple	3,000

By the supplemental Act of April twenty-seventh, eighteen hundred and sixty-three, it was enacted that one half or one quarter of these premiums should be paid to any person producing one half or one quarter of the quantities of any of the articles named in the original Act.

In the Report of the Directors of the society (p. 23), they say:

"No State ever possessed greater or more available facilities for the support of a prosperous manufacturing community than California. Her mountains are covered with perpetual snow, feeding thousands of rivers and streams, which, as they wind their varied descending courses through the foothills to the plains, invite the manufacturer to successful enterprise and point the State to the neglected means of her future greatness."

The entries of cotton at the State Fair of eighteen hundred and sixty-three were:

"Jackson & Johnson, Sacramento County—Sample of a field of twenty-five acres.

"J. Clark, Sacramento—Sample grown on dry sandy soil."

An honorary diploma, "for the best five acres of cotton," was awarded to Jackson & Johnson (p. 122).

At page fifty-nine of the report it is said:

"Of cotton culture, but little can be said of an encouraging nature. The State offers of premiums for this fiber, however, have had the effect of instituting a great deal of newspaper discussion, and awakened attention to it to such an extent that numbers of enterprising citizens have made large experiments, with the hope of success."

The Report of the Committee on Awards (p. 92), also alludes to the subject of cotton culture in California in a manner calculated to discourage all efforts to promote it, as follows:

"COTTON.—'Cotton is King!'—a political maxim not found to stand the inexorable logic of war.

"Within the past two years attempts have been made in various parts of the earth to cultivate this valuable fibrous plant, and with what measure of success remains yet to be learned. Cotton, as a fiber for human clothing, was grown ages before the era of human history, so that its extraordinary claim as an arbiter of commerce may not be of modern assumption. This much, however, is known; that it had no commanding importance until after the invention of the 'gin,' to separate the seed from the fiber. Possessing a well disciplined and abundant compulsory labor, with a climate and soil covering every requisite, the Gulf Atlantic States soon became the great cotton growers of the world. This preëminence was maintained against powerful efforts in India, aided by the British Empire, which could detail to this enterprise hordes of laborers, quite as much subject to the involuntary condition as was negro slavery in the United States. With quite as rich a soil, India yet lacked the favoring seasons which follow with periodical certainty in America. Cotton growing may assume some importance in countries where the climate assimilates to that of the Southern States, but such importance will be limited to the removal of the difficulties which have temporarily convulsed the industry of those States. With the return of stable government will return social order, and all classes being brought to the common level of necessity, will be obliged to work. This will add vastly to the physical labor power of the cotton States, as there will be no longer any requirement that one half of the community shall be employed in compelling the other half to labor.

"Thus it will be seen that the inducements to cotton culture in California are of a temporary, rather than a permanent character, and will be withdrawn entirely with the resumption of industrial pursuits in the disturbed districts of the cotton-growing States. Neither is California more favorably situated by reason of climate than the lack of other facilities for the growing of this fiber. Cotton growing requires a warm, moist climate for its most successful production, and on the phenomena of humidity the growing and ripening season of our State is the very reverse of that of the cotton States.

"These suggestions are not made for the purpose of discouraging experiments in cotton culture in our State, but that important facts connected with it may not be lost sight of by those too sanguine in an enterprise which, on first sight, gives promise of splendid results."

The explanation and disclaimer with which this remarkable mixture of theory and prophecy concludes was certainly required, since without it the reader would naturally have imagined that the writer's object was precisely that disclaimed. A suspicion might also have arisen that possibly the writer might be intending to secure a premium, and desired to discourage competition, and thus defeat the main object of the Legislature.

EIGHTEEN HUNDRED AND SIXTY-FOUR.

Perhaps owing to the style of management indicated by reports of the character just quoted, and their discouraging effects, in eighteen hundred and sixty-four the State Agricultural Society was out of funds, the Legislature having declined to appropriate money for its benefit, and being thus unable to offer premiums, held no agricultural exhibition, but merely a stock Fair. This year was also remarkably dry, and it was thought an agricultural exhibition would not be creditable.

In the report for that year, at page forty-one, the culture of cotton is mentioned as follows:

> "It may not be improper here to state that J. Morenhout, Consul of France at Los Angeles, lately sent five samples of cotton, produced in that county by as many different persons, to the Minister of Agriculture and Commerce in France, who, after having the same carefully examined by competent judges, returned, in his official report, that the samples were all identical in quality and would command then about the same price as the short silk cotton of the Southern States—from sixty-two dollars to sixty-three dollars per one hundred pounds. The experiment will be thoroughly tested in that county this year."

Thus, at this early day, the good quality of California-grown cotton was officially recognized abroad.

EIGHTEEN HUNDRED AND SIXTY-FIVE.

At the State Fair of eighteen hundred and sixty-five, the following were the cotton exhibits made and premiums awarded (p. 404):

F. A. Harnden, San Francisco—Cotton Bolls: Special notice.
M. Keller, Los Angeles—Cotton Plants: Special notice.
José Rubio, Los Angeles—Sample of Cotton: Honorable mention.

On the twenty-second of December, eighteen hundred and sixty-five, Mathew Keller, of Los Angeles, was awarded the State premium for a cotton plantation of one hundred acres, three thousand dollars (p. 413).

At page two hundred and eighteen will be found the opening address of Dr. E. S. Holden, President of the San Joaquin Valley Agricultural Society, at its annual Fair, held in Stockton during that year, in which occurs the following passage:

> "The culture of cotton and rice, two great leading staples of consumption and commerce, have been sufficiently tested to warrant their culture on an extended scale. From this county (San Joaquin) to Mexico, cotton has been raised this season, enough to test perfectly the certainty that it can be raised to great perfection and in large quantities with a little irrigation, or half the amount that corn requires. The southern counties contain millions of acres and a climate perfectly adapted to its profitable culture. Mr. Mathew Keller, of Los Angeles, planted this season, in March, one hundred acres. The result in production, both in quantity and quality, is a success, and he has applied for the State premium for producing one hundred acres. The cost per acre in raising this cotton was not more than corn or cereals."

That as accurate an idea as is possible may be obtained concerning the experiments of this year, the following statements concerning them are given in full:

STATEMENT OF A. R. JACKSON IN REGARD TO THE COTTON CROP IN THE SOUTHERN PART OF CALIFORNIA IN EIGHTEEN HUNDRED AND SIXTY-FIVE.

[From Report of State Agricultural Society, 1865, p. 262.]

SACRAMENTO, December 15th, 1865.

I. N. HOAG, ESQ., *Secretary State Board of Agriculture:*

DEAR SIR: Having visited the southern portion of this State recently, and having seen most of the cotton fields now in cultivation there, I hand you, at your request, the following brief statement in regard to them:

COTTON CROP.

In Los Angeles, Ignacio Monteo has twenty acres. Character and condition of these crops not known, but were said to be promising. José Rubio has fifty-three acres, four miles west of Los Angeles—twenty-five acres in one field and twenty-eight acres in another. The seed was principally the green Tennessee Upland, a few rows of Sea Island, and a few rows of seeds sent from the Patent Office, supposed to have come from Texas. A part of this crop was planted in the last of April, and the whole was completed on the tenth of May. The ground is a fine, sandy loam, and was not irrigated. The twenty-eight acres did not produce a very even crop—a part appearing (October twenty-fifth) vigorous and well matured and a part stunted and imperfect. The twenty-five acres will, apparently, be remunerative, being a good stand, of vigorous growth, and excellent fiber. The seed was planted in ridges four and a half feet apart, properly thinned and hoed, but not topped.

Mr. Keller, some two miles north of Rubio's, has one hundred and eight acres. Seed, Mexican, Tennessee, and Petit Gulf—the last two varieties obtained at Salt Lake. The whole was planted in furrows four and a half feet apart, planting closely, in the latter part of April. Crop irrigated twice; soil, sandy and gravelly. About twenty acres of Petit Gulf, though the bolls are small, will make an excellent yield. This variety appears most vigorous, matures early, and will unquestionably, in our climate, insure a certain crop. The Mexican ripens very slowly, but has a large boll, and the fiber, though coarse, is long and firm. The Tennessee seems less regular in yield, owing, perhaps, to the difference in quality of soil, some spots failing entirely and in other places apparently thrifty stalks yielding very few if any bolls.

All parties in this county seem satisfied the crop with them will succeed, and next year there will be several thousand acres planted.

In Tulare County, Messrs. Livermore, Jewett & Chester have one hundred and thirty acres planted on Kern River, near Kern Lake. The varieties are Mexican, Tennessee, and Sea Island. The last here, as in Los Angeles, is not successful. It matures slowly, and seems unfitted to our climate. This company have about five acres of this variety, but it will evidently not mature before frost. The Mexican and Tennessee seem more thrifty than in Los Angeles. The planting was finished in May. The ground is quite sandy, but with irrigation seems highly productive. The crop was irrigated twice. The seeds were planted in ridges, furrowed with a bull-tongued plow, and the plants well thinned and hoed. The stalks at maturity were topped and trimmed. Much of this ground, for causes unexplained (perhaps alkali), like Keller's, was unproductive. These spots would, perhaps, reduce the land in bearing to one hundred and five or one hundred and ten acres, but the stalks, in all cases, seemed productive and well filled with bolls. The Tennessee here also matures much more rapidly than the Mexican, but both seemed sufficiently advanced to insure a favorable yield. Mr. Jewett, superintending the work, said he had gathered (November second) about seventy pounds to the acre (unginned cotton) and thought most of his would yield over a bale to the acre. The fiber, by several experienced growers, was pronounced superior.

In Fresno County, Messrs. Burchardy & Kinkead have a field of one hundred acres on Upper King's River, all Mexican, and was planted in the latter part of May. This crop is less advanced than either of the others. It was planted in furrows, and covered with a plow at very irregular depths. The ground is a fine, warm, sandy loam, and the crop (November ninth) looked thrifty. The field, owing to the manner of planting, was in parts very thick and in parts very thin, but the stalks were well filled, and the bolls were just beginning to open. The crop was cultivated very nearly as it grew, with little or no thinning, and no topping or trimming of stalks. The field was well sheltered from prevailing winds, and the owners did not anticipate any injurious amount of frost till midwinter. If their views should prove correct, the vigorous character of their crop will give them a good yield. Mr. Barton, farther up the river, has an acre or two of Green Seed and Mexican, but its condition was not ascertained.

These parties are satisfied that if their present crop is not profitable the result is attributable to their want of knowledge and experience in cultivation, and are erecting a gin house and gin, with a determination to continue the cultivation.

Respectfully,

A. R. JACKSON.

From the foregoing letter it appears that Mr. Jackson had not examined the crop of Ignacio Monteo, or Mr. Barton, at all; that of José Rubio and Matthew Keller he saw before picking commenced; that of Messrs. Burchardy & Kinkead was, when he saw it, less advanced than any of the others, and that of Messrs. Livermore, Chester & Jewett was just commencing to be ready to be picked.

Mr. Solomon W. Jewett, in a statement concerning the agricultural prospects of Southern California, made by him that year and published in the same volume (at pages 259 to 261), refers to the cotton crop of Messrs. Livermore & Chester, and gives further particulars concerning its culture and condition, most of which, however, is repeated in a statement made by Livermore, Jewett & Co., several months later, and published in the same volume (at page 265). In July, eighteen hundred and seventy-one, during the Fair of the Mechanics' Institute of San Francisco, Mr. Jewett wrote still another statement concerning the same crop, containing a few additional particulars, which can be found in the Report of the Eighth Industrial Exhibition of the Mechanics' Institute of San Francisco, eighteen hundred and seventy-one (at page 211).

In these statements he says the Mexican seed was planted first, commencing in the end of April or first of May. Afterward, as fast as the ground was prepared, the Tennessee seed was planted, ending May twenty-second; and last of all the Sea Island, the planting of which was concluded June sixth. This latter he thinks should have been planted in March. The seed came up in five or six days after planting, of a good lively green hue, with scarcely a sickly plant to be seen. The Mexican excelled the others in growth and beauty of stand, but the Tennessee was well in the boll by the time the Mexican was still in the square. On the first of July the stands were from six to twenty-two inches high and beginning to square. July twenty-ninth fifteen acres were irrigated for the first time. The whole field was inundated with water after the first plowing. Finished irrigation August twenty-sixth. Most of the field was irrigated twice. In his opinion, after the first wetting it should have received no further irrigation, as the deep tap roots were able to draw sufficient moisture from the subsoil. As the irrigation kept the plants growing and bolls forming late in the season the bolls were not fairly opened until October tenth. Picking commenced October second. The Sea Island and Mexican varieties only turned off a few bales, indicating that the Tennessee was the only suitable variety. Some of the best acres of Tennessee produced, under such a superabundance of water, about eight hundred pounds of seed cotton to the acre, which would have been doubled with earlier planting and less irrigation. The cotton was ginned by horse-power, baled, and sent to market. It was of long and showy staple. Only twenty-five cents per pound was offered and but one buyer in the market. It was manufactured at Oakland and some bales of the cloth sold at the store upon the land where it was raised. The labor employed was mostly Chinese, and cost from twenty-two dollars to thirty dollars per month. They did the work required successfully, and were faithful to a fault. The Superintendent, an experienced Southern cotton planter, received fifty dollars per month. The expense of the first year's crop, owing to the cost of clearing the land, could not be easily estimated (in another statement this item was estimated at seven dollars per acre), but it was believed that another year one fourth the labor and expense would produce more cotton, and that the land once tilled, and machinery and tools at hand, the cost would not exceed five cents per pound.

He also mentions that "at Three Rivers, Visalia, cotton was grown successfully last year, in small quantities, at an average yield of over five hundred pounds to the acre."

The following is the statement made by Messrs. Livermore, Jewett & Co., concerning the same crop planted at Bakersfield, then in Tulare, now in Kern County, to be found at page two hundred and sixty-five of the same volume:

BAKERSFIELD, KERN RIVER ISLAND, December 22d, 1865.

The cotton lands of Livermore, Jewett & Co. are located in the most southern portion of Tulare County, on the borders of Kern River, which affords a never-failing supply of water, and may be used for the irrigation of a tract of land ten miles in width and twenty in length. The attempt to plant and produce a crop of cotton was commenced late in the Winter of the present year, from which time ditches and fences were to be made, the new lands cleared and broken up, and seed to be procured. The Tennessee Upland seed was obtained in New York, together with the Sea Island seed, and the Mexican from the port of Mazatlan. The long delay in procuring the seed made it impossible to carry out our original intentions, and instead of planting before or by the fifteenth of April, the first seed was not put in until the first day of May. The soil was a rich, sandy loam, peculiar to the river bottoms of the lower country, and was densely covered with the switch willow, grown to the height of ten feet; yet so easily were the willows removed with a common plow, that the cost of clearing was but seven dollars per acre. After breaking and clearing the land, the whole one hundred and thirty-three acres were thoroughly irrigated through ditches of about one mile in length, and at a distance of forty rods apart. As fast as the land then became dry, it was laid in ridges by throwing four furrows together. The ordinary "bull-tongue" plow was then run through the center of the ridge, one man following with the seed and planting as fast as the plow moved along. About five pounds of seed was planted to the acre.* The planter was followed with a one-horse plow, to which was attached a piece of board thirty inches in length, and concave on the bottom, which, passing over the furrow, effectually covered the seed. A portion of the sandy land was plowed and furrowed four or five inches deep, and the seed planted therein was covered with a small harrow. When planted late in the season, it would seem to do as well, and perhaps better, than to be planted in the other way. Planting in ridges in the early part of the season seems most favorable, as the ridges have more or less the heat of the sun, the seed thereby more quickly generating. Planting was continued until the seventh of June, and the plants all matured well.

On light sandy soil the rows were put from three and a half to four feet apart, and the plants thinned to a distance of from eighteen to twenty inches in the rows. The plants attained a good average size, growing very uniform in height, and in September presented an appearance of great strength and beauty. In the richer tule soil the rows were widened to a distance of five and six feet, and the plants thinned to twenty-four to thirty inches in the rows. The plants here grew to a great size, many of them from six to nine feet in diameter, and were heavily loaded with bolls. They excited the astonishment of many who were familiar with the growing of cotton in the Southern States. The bolls bore the huge plants down with their weight, in many cases breaking off stems of an inch in diameter.

The field was worked over three different times—first with the hoe as soon as the plants were up, cutting the weeds and thinning out the plants to two or three in a place. The second time we used a small steel plow, running as close to the plants as possible, for the purpose of destroying the weeds, and thinned the plants to one—the strongest—in a place. The third time a plow was run between the rows, throwing the soil to the plants, and leaving the open furrow in the center. The reducing of the weeds and grass of wild land required extra labor, which could be entirely dispensed with in the second year's planting, and the cost would therefore be much reduced.

It was not difficult to find persons who well understood the raising of cotton in the Southern States, but none knew anything of its growth by irrigation. This appeared the most formidable obstacle in the way of securing a crop. The climate offered everything favorable to the enterprise; but when and in what quantity to supply the water, must partake of the uncertain character of an experiment. The water was introduced in the center of the furrows upon part of the land, while on the other parts the ground was flooded. It was found that the plants did not suffer when water did not stand about the plants more than twelve hours. Experience soon taught us that the best way of irrigating was through the center of the rows, the ground easily absorbing all the moisture needed by the plants.

The result of careful experiment was, that though the plants would bear more water than any other crop common to the country, yet, by reason of the long tap root made by each plant*—often reaching to a

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*This is probably a typographical error, as S. A. Jewett, in his statement says, "In all about two thousand pounds of seed was planted in this field," (which Jackson says contained one hundred and thirty-three acres), and that the seed was planted "at the rate of fifteen or twenty pounds to the acre." In the Southern States the seed is often thrown by handfuls in the trenches; what does not grow or is not suffered to live, thus serving as manure.

* Mallet, in his work on the Culture of Cotton (p. 158), says the roots of the cotton plant "are long, especially the principal or tap root." The results of a number of measurements, of cotton plants which had attained their full growth, upon the spot whence the canebrake soil was taken for examination, showed that the average depth of the root from the surface of the ground was about two feet one inch, and the average lateral spread of the roots (diameter of the circle occupied), was about two feet nine inches. This refers to plants in Alabama. It is evident from the above and other statements herein given, that the growth of the cotton plant is far more vigorous here than there. The authorities also say that the cotton plant, with three feet of mellow soil beneath it, will withstand any amount of drought.

depth of four feet—very much less water was required on these bottom lands than was absolutely necessary to the successful cultivation of corn. We irrigated some portions of the land once, some twice, and some three times. When ditches were prepared, one man could irrigate from five to ten acres per day.

In the month of September the top of the cotton was cut off with a large knife, one man cutting about three acres per day. It was found necessary to check the growth of the plant and hasten the maturity of the bolls. The delay in procuring the Eastern seed made it necessary to plant the Mexican seed first; but it was found that the latter required at least six weeks longer to mature than the Tennessee. The Tennessee cotton, although planted three weeks later than the Mexican, was heavy with bolls by the time the latter was in blossom. Some portions of the land, which was covered by a layer of coarse sand, where the ground had been flooded, was found to produce the best plants.

We commenced the picking of the Tennessee on the second of October, but it did not open freely until the fifteenth of the same month. On the tenth of September a heavy frost blackened the vines and materially injured the Mexican cotton, it being so much later than the other. It was found that plants upon ground which was irrigated immediately after the frost were but little injured.

The whole amount of land planted in cotton was one hundred and thirty-three acres. Of this, about twenty acres was put in to Sea Island, and from five to ten to Mexican, leaving from one hundred to one hundred and ten acres in Tennessee, which latter was all in good bearing. The Mexican plants grow very thrifty, with large leaves, which shade the bolls and delay their ripening. The first Sea Island opened the fifteenth of October, but to the twenty-fifth of November we had picked only one hundred pounds. The plants make a stout growth, and fill well with blossoms, but the bolls are small, do not open freely, and are evidently out of their latitude. It probably could not be profitably raised in this country. We had but little of the Petit Gulf seed, but became satisfied that it and the Tennessee Upland were the only kinds adapted to our soil and climate. They make a quick and uniform growth, yield heavily of pure white cotton, and, if planted early in the season, would mature before any possible chance of frost.

The Winters here are very favorable to the gathering of the crop. Rains are uncommon; fogs hardly known; the days bright, doing away with any necessity of drying the cotton. The soil and climate are favorable to the production of grains, vegetables, fruits, etc., and some of these crops may be cultivated to advantage in connection with the cotton.

We propose planting one hundred acres of cotton the coming season, and have strong hopes of inducing many others to plant smaller quantities, by offering the seed free, and giving the use of the implements, with which we are now so well provided. We employ, in gathering the crop, about thirty hands, and gin the cotton by horse-power.

As near as we can judge, one man can till ten acres of cotton. We are now, and from appearances may be, picking for some considerable time, and the amount raised per acre is, therefore, as yet, uncertain. The sum of our experience may be considered to be:

First—The low bottom and tule lands of the State, of which Tulare County contains a large amount, are well adapted to the raising of cotton.

Second—That the Petit Gulf and the Tennessee seed are the safest and most profitable, and should be planted as early as frost will allow.

Third—That from the hardy nature of the plants, but little skill is required in the irrigation.

Fourth—That the seasons are especially favorable to the production and harvesting of the crops.

Mr. José Rubio, at the time of holding the State Fair, at Sacramento, in a letter to the Secretary of the State Agricultural Society, made the following statement concerning his mode of culture and the cost, (page 264, State Agricultural Society Report for 1865.)

LOS ANGELES, September 14th, 1865.

I. N. HOAG, Esq., *Secretary State Board of Agriculture:*

SIR: I have forwarded to your address, by Wells, Fargo & Co., a sample of cotton of this year's growth, for exhibition at the State Fair. It is a sample from my plantation, situate half a mile from the southern boundary of this city, and three miles from the central business portion of it.

There are fifty acres under cultivation, consisting of two lots of twenty-five acres each, a road passing between them. The land is of a rich alluvial deposit, and of the first quality for cultivation.

In the beginning of April, eighteen hundred and sixty-five, I commenced plowing the land with a light plow, and then cross-plowed it, then gave it a good harrowing. I then laid out my lines six feet apart, with cross-lines three feet apart, and planted from three to four seeds in a hill (the seed I obtained from Utah Territory), and covered the seed about half an inch deep. All of which work I finished by the latter part of April.

In the beginning of July following, the cotton had attained a height of eighteen inches. At that time I plowed it, turning the furrows towards the plants. In the beginning of August last, I plowed it again in the same manner.

The plants are now from four to six feet high, and spread out so as to form an almost impenetrable barrier between the rows. The bolls are ripening, and opening out very rapidly, showing a good staple, as sent you. I will commence picking the cotton about the twenty-fifth of this month, and I estimate the yield will be about five hundred and fifty pounds to the acre.

Before plowing, I irrigated the land well, since which time I have not irrigated it at all. In my opinion, there is no plant that requires so little water as this class of cotton. But the land must be of the best quality, with a light dry soil. I think that too much water retards the growth of the plant to such a degree that the frost is liable to injure it before ripening.

My plantation is on Government land, upon which I have settled, and hold by actual occupation, and there are several thousands of acres adjoining me on the south, equally as good, and unoccupied, well adapted to the cultivation of cotton.

I herewith submit a statement of the cost of putting in the crop, and incidental expenses attending the same, up to the first of this month:

For plowing fifty acres twice, at $2 per acre	$200
For making rows and sowing, five men for eight days, at $1 50 per day	60
For wages of one man at $35 per month for four months, plowing and taking care of the same	140
For 300 pounds of seed, at 30 cents per pound	90
Total	$490

Very respectfully, your obedient servant,

JOSÉ RUBIO.

P. S.—The proper affidavits, substantiating the above and foregoing, will be forwarded by next mail.

Concerning his cotton crop at Los Angeles, Mr. Matthew Keller also made the following statement (Report State Agricultural Society, 1865, p. 268):

LOS ANGELES CITY, September 9th, 1865.

I. N. HOAG, ESQ., *Secretary State Agricultural Society:*

DEAR SIR: I have forwarded one box of cotton in boll, taken from a field of one hundred and eight acres, planted in the latter end of March and first days of April. The seed was planted thus late in consequence of the season having been unusually cold. I also desire to announce myself, through you to the President, as a competitor for the premium offered by Act of the Legislature of eighteen hundred and sixty-two, for the best one hundred acres of cotton and the best one hundred bales of cotton. For the benefit of those who are unacquainted with my mode of culture, I likewise forward you a few remarks upon it, as practiced by myself.

I send also a box containing samples of Sicily lemons; also samples of the shaddock, of the orange species (*citrus decumana*); also specimens of the quince. Hoping these articles may prove acceptable,

I remain, dear sir, your obedient servant,

MATTHEW KELLER.

COTTON CULTURE IN CALIFORNIA.

There is no plant, scarcely, that requires so little moisture to grow as cotton, nor for which irrigation is so well adapted. In the Southern States, where they have not learned to irrigate the plant, and depend entirely upon the rains that fall, or upon soil that has a deep moist bottom, the crops are very irregular. When planted on a moist soil it requires no irrigation or rain, but should it rain copiously the crop will be damaged and short, and ripen too late, for the reason that too much moisture keeps the plant growing, making wood and foliage, and refusing to boll but sparingly. On the other hand, if cotton is planted on upland and the rains do not moisten it, it becomes stinted, producing bolls prematurely, sometimes not worth the picking. Hence the irregularities—the crops being good on the moist soil, and vice versa.

It is customary to top cotton which is growing too rank in strong or too moist a soil, in order to stop its growth and force it to boll, but such a crop will be always short and inferior. Therefore irrigation is peculiarly adapted to cotton, and when planted on land controlled by irrigation, the exact wants of the plants can be supplied, and can be made to bear to its utmost perfection.

The southern counties of California are well adapted to the growth of cotton, where irrigation can be had. The growing season is long, dry, and warm, and the gathering may extend to January. South of this, extending from the State of Sinaloa among the Pima villages of Arizona, and lately among the Mormons, the blessings of irrigation produce fruits of labor, especially of cotton, apparent to every mind, and we, blessed with far more of that inestimable element than they, should use it to advantage.

I have found the best cultivation to be to corduroy the ground—that is, to plow the furrows high, like a hog's back, four and a half feet wide, leaving an irrigating ditch to facilitate the irrigation; after which the dirt is partly turned into the ditch, covering the moisture by running a small plow both ways; then a small channel made on the surface of the trench by means of a bull-tongue plow, in which the seed is scattered, and covered by the hoe, is the best way. Great care must be taken that the seed is not planted too deep, for if planted deeper than two inches, the plant cannot come up; but one inch is the proper depth, and therefore the soil must be well comminuted and in the proper state of moisture to enable the seed to come out vigorously. In order that the seed may not stagnate in the ground, in the absence of abundant rain, the plan is to irrigate and plow in February, corduroy, irrigate, and plant in the middle of March, which will give the plant ample time to grow and ripen its crop. The land being well and deeply saturated with moisture at the time of planting, one irrigation more will be sufficient to mature the crop, unless the land be too porous and sandy. Friable soil is good, but tough and sticky lands are unsuitable. The proper distance for any ordinary good soil is four and a half by two feet.

The cost of planting and cultivating cotton is about the same as corn, only that corn requires twice as much irrigation as cotton. As to expense of picking cotton in California, I have no experience, and it belongs to the second chapter of my experience, to be written after this one. But I believe that the California Indian will do it as cheap and far better than the negro.

California ought to raise enough cotton to manufacture not alone for all her wants, but sufficient for the Pacific slope; and the time may arrive when California will rank, as a single State, the best cotton-growing region of America. I cannot see any difficulty in the way; it certainly will pay better than cereals. The price of cotton ought to be a fraction higher in California than in European markets.

When we look to the fact that the Pacific Mail Steamship Company have obtained the contract for the mail between this country and China and Japan, and that it is but the opening of a traffic between ourselves and six hundred millions of the human race, we must see the importance a successful culture of cotton would be to California. During all of the past war, with the wealth of the European world to buy cotton, it could only afford the coarser fabrics of cotton goods to these nations, at from fifty to seventy-five cents per pound. Six hundred millions of buyers cannot be found in Europe. Then why could we not send our manufactured goods to those benighted nations, in fifty to sixty days, raised and made on the Pacific slope, instead of depending, as we do, for our cotton manufactures, upon the East?

When the farmer raises the first patch of cotton, his seed costs him nothing afterward. For every four hundred pounds of clean lint, he will have one thousand pounds of seed, which is valuable to make oil and feed to cows and horses. I paid from fifty to seventy-five cents per pound for my seed, and much was damaged by being taken out of a heated pile, or because it sweated in the hold of the vessel that brought it, and made me much expense by replanting. Now, I propose to sell my seeds for ten cents per pound, of approved and reliable quality, delivered at Los Angeles. I have procured seed from Mazatlan, Hermosillo, Salt Lake (by favor of Brigham Young), Pima Villages, Petit Gulf, Mastodon, Carolina, and Tennessee Upland. Next year my purpose is to furnish seed to the people of the State. I have one hundred and eight acres of land in cultivation with cotton; it is now in boll, and beginning to open, and will, I think, make as good a crop as can be made anywhere. I am a candidate for the premium for cultivated lands of cotton, and for the first one hundred bales of cotton, according to the laws of eighteen hundred and sixty-two, page four hundred and nineteen, sections two, three, and four.

As before mentioned, the State premium was awarded to Mr. Keller for this crop. As the next year was very unfavorable for experiments of all kinds, it is probable that the cotton planting was not further prosecuted for that reason, Mr. Keller's attention being fully occupied with his vineyard and orchard, one of the largest in the State.

It was unfortunate for California that at this time one of the leading authorities upon agricultural questions in this State—the late Wilson Flint—had apparently made up his mind that the culture of cotton could not be successfully prosecuted here, or that if the crop could be raised, that the Southern States possessed so many advantages over California that competition would be impossible in the long run. To use his own words:

> "Regarding the present high price of cotton fiber as temporary rather than to be permanent, the cultivation of this textile does not promise to be either extensive or remunerative in the Pacific States and Territories; and however desirable it may be to have sufficient produced in those localities for the consumption of the resident population, climatic reasons will be found an insuperable obstacle to even a partial success in this industry."

These ideas he elaborated at considerable length, in an article published in the same report, in which he also, for the same reasons, predicted that the culture of flax and hemp would also prove unsuccessful, as well as that of all other plants valuable only for their fibers, opinions which the facts resulting from actual tests made since that date have effectually demolished. The subject of irrigation he dismisses in two short sentences, as follows: "It may be contended that the absence of rain may be remedied by artificial irrigation. This may be true of California, where the means of irrigation on a large scale are obtainable at moderate cost. But passing this objectionable mode of supplying a deficit in nature," etc. The impress of his ideas are visible in the reports of the State Agricultural Society upon this and similar topics; and the publication of his essay, together with the statements of actual cultivators, all of whom claimed a success in cotton culture, seemed to discredit these statements, and had a very discouraging effect upon many who otherwise might have experimented successfully.

EIGHTEEN HUNDRED AND SIXTY-SIX AND EIGHTEEN HUNDRED AND SIXTY-SEVEN.

The reports of the State Agricultural Society for these years are published in one volume. In the report of eighteen hundred and sixty-six (at page 39) the following remarks are made:

COTTON.

The history of the cultivation of cotton has also been an anomalous one in this State. Experiments on a small scale had been made for a number of years, in different sections, with gratifying success. Encouraged in part by these results, and in part by the very liberal bounty offered by the State for the first production in large quantities, several parties in the southern counties planted quite extensively in eighteen hundred and sixty-four. They all labored under adverse circumstances. Their seed was in great proportion of those varieties not adapted to our climate, being of the large, late varieties, and of a poor quality, rendering replanting, to a great extent, necessary. As the parties referred to were competitors for the State bounty on a hundred acres, they strained every nerve, but more to secure the number of acres specified to be planted than to insure a proper cultivation of the crop after it was planted. But, notwithstanding all these unfavorable circumstances, they all produced a more or less creditable crop; those portions of their fields which were planted with the Tennessee Upland and Petit Gulf seed making excellent crops, both in respect to quantity and quality. One of the parties alluded to, in a letter to the Secretary of the Board, says:

"The sum of our experience may be considered to be:

"First—That the Petit Gulf and the Tennessee may be considered the safest and most profitable, and should be planted as early as frost will allow.

"Second—That the low bottom and tule lands of the State are well adapted to the raising of cotton.

"That, from the hardy nature of the plants, but little skill is required in irrigation, and that much less water is required than would be necessary in the successful cultivation of corn.

"Fourth—That the seasons in California are especially favorable to the production and the harvesting of cotton."

Another one of the parties writes:

"California ought to raise enough cotton to manufacture, not alone for all her wants, but sufficient for the Pacific slope; and the time may arrive when California will rank, as a single State, as the best cotton-growing region in America. I can't see any difficulty in the way; it will certainly pay better than cereals. The price of cotton ought to be a fraction higher in California than in the European markets. The cost of planting and cultivating cotton is about the same as corn, only that corn requires about twice as much irrigation or rain as cotton. I paid from fifty to seventy-five cents per pound for my seed, and much was damaged by being taken out of a heated pile, or because it sweated in the hold of the ship that brought it, and made me much expense by replanting."

The latter party took the bounty of three thousand dollars offered by the State "for the first one hundred acres of cotton in bearing, of good staple."

Thus far the history of our cotton culture looks well and encouraging, having proved beyond a doubt that with prudent management it may become one of our best and most profitable agricultural products. The cotton factory at Oakland prefers California-raised cotton to that imported from the East, and yet, in the face of all these favorable facts, we have to record the strange truth that that same factory has been during a good portion of eighteen hundred and sixty-five, and is now, importing raw cotton from New York to supply its wants for manufacturing cotton goods; that it is turning off about sixty thousand yards per month, all of which are made up into the single article of flour sacks, and this does not supply the demand for that article.

This fact has a significance in more ways than one. In the first place, it suggests the important question, Why are not the farmers of California supplying the raw cotton for this factory? And in the next place, it suggests the immense quantities of cotton that would be used on this coast if raised and manufactured here in quantities to supply the demand; and, consequently, what an amount of our gold we export in exchange for cloth that we can and ought to raise and manufacture ourselves.

But to the explanation of the first inquiry. When our cotton crops of eighteen hundred and sixty-four were ready to be put into the market the war had closed, and from various causes, not necessary to mention here, cotton fell in price all over the world. About that time our cotton factory, which alone could produce any demand for the raw material on this coast, was completed and ready to run, but did not feel disposed to pay more for cotton than it could be laid down here for from New York, and the exchange of money between San Francisco and New York favored the importer. Our producers had anticipated a high price, and would not sell for the price offered by the factory. Both the production and the manufactory being new enterprises, each felt entitled to a little favor, and was in no condition to grant what itself was claiming. This state of things probably produced a little stubbornness on both sides, and the factory commenced the importing of raw cotton from New York, at a considerably less figure than the California article was held at. These circumstances, combined with others at the critical time, operated against the continuance of the production by the same parties; and others, not understanding the cause of such discontinuance, have attributed it to a want of success in the process of the production, and thus has resulted a general disinclination among our farmers to engage in the business, much to the detriment of their own interests.

This society has on hand a large amount of good seed, which they will distribute free to those who desire to plant it, and it is hoped the farmers on our river bottoms will give the matter a careful consideration and fair trial; at least, throw a few bales of cotton in to help dam the stream that is carrying so much gold from our mountains out through the Golden Gate.

At page forty-three, under the question, "What shall we raise?" cotton was recommended as an experimental crop, together with tobacco, silk, sugar, butter, wine, raisins, figs, castor beans, flax, rice, oranges, lemons, English walnuts, and almonds.

At page seventy-five, in the annual address of Charles F. Reed, President of the society, the fact that "we are producing and manufacturing cotton" is merely alluded to as one of the hopeful signs of the future.

At page one hundred and three is the award of premiums for mill fabrics at the Fair of eighteen hundred and sixty-six:

To W. H. Rector, Brooklyn—Best piece of cotton sheeting: First, three dollars, and diploma.

J. C. Meyer & Sons, San Francisco—For the best exhibit of cotton batting and wadding: Special, silver goblet.

It does not appear from the report that any other samples of cotton were exhibited.

At the Fair in eighteen hundred and sixty-seven the following appear to be the exhibits and premiums awarded (pages one hundred and fifty and one hundred and sixty-five):

To Oakland Cotton Manufacturing Co., Oakland—Best display of cotton goods by one manufacturer: First, fifty dollars.

(Page one hundred and fifty-four) Mrs. C. E. Atkinson, Folsom—Sample of cotton: Honorable mention.

A. Menke, Sacramento—Samples of cotton: Honorable mention.

At page one hundred and ninety-five is the statement of the Pacific Woolen Mills, of San Francisco, which exhibited goods of their manufacture at the Fair, in which the company say:

"Eighth—In the making of merino goods we use the finer grades of cotton, and paying full prices for the same, will in time stimulate our planters to raise a better species of cotton than is now called for in the manufacture of brown drills, sheetings, shirtings, and osnaburgs in this State. In fact the demand thus created in stimulating the production of cotton, will, when successful, be but the forerunner of mills for the making of fine qualities of cotton fabrics which are much needed on the Pacific coast."

At page one hundred and ninety-seven is the statement of the Oakland Cotton Mills, which exhibited goods at the Fair, in which the company say:

"The design was formed in eighteen hundred and sixty-four, and a year of valuable time was spent in the manufacturing States of the East. Before this was done, however, the adaptability of California soil for the production of cotton was pretty well investigated It is true we expected a larger production of the raw material than has been realized, but we are fully satisfied that California can and will produce a sufficient amount in a few years to supply her own and neighbor States their consumption. I may mention that the largest bounties offered by the State for the manufacture of cotton goods was a stimulus in our enterprise and an encouragement that I am glad to say has been fully realized.

"Our first yard of goods was woven on the first day of December, eighteen hundred and sixty-six. Since then our factory has produced one hundred thousand yards of sheeting, fifty thousand yards of manta, for exportation, and three hundred thousand yards of shirting, made expressly for and manufactured into flour sacks. In doing this we have consumed about fifty thousand pounds of California cotton, one hundred thousand pounds shipped from New York, and about fifty thousand pounds from Mexico and Central America. We would not have had to ship cotton from New York, but strange as the coincidence may seem there was a duty of five cents put upon foreign cottons about the time or very soon after the machinery was shipped for our factory. It has since been reduced to three cents.

"Allow me, gentlemen, as a matter of pride, to utter my firm convictions that at no distant day California will dance to the merry music of twenty thousand spindles.

"In regard to our woolen or mixed fabrics: we found there was an entire deficiency in the market of a style of mixed goods which has always been popular and known as Kentucky jean. We provided machinery and began its manufacture—how well we may succeed is yet to be seen. I have the satisfaction, however, to say, that all who use it speak well of it and give encouragement."

This statement was signed by L. J. Rector, Secretary of the Oakland Cotton Manufacturing Company.

At page one hundred of the report it will be seen that there was awarded to the Oakland Cotton Mills the first premium of fifty dollars, for forty pieces of cotton cloth exhibited.

At page two hundred and ten, Mr. M. L. Haas, who exhibited California-made shirts, estimated the wants of our population at one hundred and thirty-three thousand dozens men's white shirts, and thirty-five thousand dozens boys' white shirts, of the average value of twenty-four dollars per dozen, and ranging from eighteen to thirty-six dollars at wholesale. He says:

"One of these articles (entering into their manufacture), cotton, we can expect in time to produce in California, as the raw material can be successfully raised. When there is machinery in the State to manufacture the fine varieties of cotton goods used for white shirts, there will be a sufficient incitement for planters to engage in the culture of the finer grades of cotton, which does not exist at present. In this respect, I claim that the successful manufacture of white shirts will prove a primary cause in the production of fine cotton shirting and other goods. California possesses a soil and climate well adapted to the production of the finer grades of textile fibers, and it is the interest of her people that she raise and manufacture all the great staples of commerce suited to the wants of her population."

Thus it appears that the manufacturers who were investing capital in cotton manufactures had satisfied themselves that this State could and would eventually supply their wants.

At page five hundred and eighty-five, by the report of the Assessor of San Francisco, it appears that one cotton wadding mill in San Francisco used ten thousand pounds of cotton during eighteen hundred and sixty-seven.

At page five hundred and twenty-eight, in the reproduction of a report concerning California and her agricultural resources, made originally by Horace D. Dunn, of San Francisco, to the United States Commissioner of Agriculture, and published by him in the report of that department, occurs the following mention of cotton in California:

TEXTILE FIBERS.

"Cotton, of the short staple variety, has been grown to a considerable extent in the interior portions of California. For a long time the theory advanced by one or more prominent agriculturists in the State, that cotton could not be successfully grown in consequence of lack of humidity of climate, prevented attempts at its culture. In eighteen hundred and sixty-five, however, experiments were made, mostly in Tulare and Los Angeles Counties, some four hundred and fifty to five hundred acres being cultivated. The theory that the plant necessarily required a large amount of moisture led planters generally to irrigate them when in bloom, which was attended with most disastrous results. The bolls which had partly formed fell off and new ones took their place, the latter not maturing well before the rainy season set in. As a result, but a comparatively small amount of cotton was gathered—the total crop of eighteen hundred and sixty-five not amounting to over sixty thousand pounds when ginned. The planters saw the mistake when too late to remedy it that season, but felt encouraged to plant and cultivate in a different manner the succeeding year. I have been unable to ascertain with any degree of accurateness the number of acres planted and quantity of ginned cotton raised in eighteen hundred and sixty-six—planters, when applied to by letter, evading replies in answering, or neglecting, in some cases, to write at all. As a class, the present planters are very reticent in giving any information regarding their experience, some of them having still on hand a portion of the cotton grown in eighteen hundred and sixty-five. Enough, however, is known to prove that cotton can be cultivated at a profit by white labor in California. The following instance of the crop of eighteen hundred and sixty-six, which I have from a reliable source, illustrates the ease with which cotton can be grown:

"Two men emigrated from Missouri in eighteen hundred and sixty-five, and took up a quarter of a section of land in the vicinity of Visalia, Tulare County. Neither of them had ever engaged in cotton growing, their only knowledge being derived from a person who had traveled through the Southern States and seen it growing there. They plowed some sixty acres of land in February and March, and early in April planted, and afterwards gave the crop one hoeing. Being in reduced circumstances, one of the men went off to some distance to work while the crop was growing, and the other hired out in the neighborhood of the farm. The plants were not irrigated, nor was any work done on the crop until it was gathered. During the Summer an irruption of grasshoppers destroyed about thirty acres of the crop, but the balance (thirty acres) turned out a little more than six thousand pounds of first quality, short staple, ginned cotton. Parties who have formerly been engaged in cotton raising in Tennessee and Mississippi, and are conversant with experiments in growing cotton in California, state that it can be grown cheaper with white labor here than with slave labor there, owing to the absence of crab grass and other weeds, which there necessitate constant labor in cultivation to prevent the cotton plant from being destroyed. The long, rainless Summer season also admits of gathering the crop without injury, and frost is rarely experienced until December. The total amount of land planted in cotton in eighteen hundred and sixty-six is estimated as somewhere near four hundred acres, in twenty-acre patches. It is estimated that there are from fifteen thousand to twenty thousand acres of good cotton land in Tulare Valley and its vicinity, and much larger amounts in the other portions of the State. It is believed that the long staple, or Sea Island variety, could be successfully and profitably grown in the southern coast district; but, so far as known, it has not been tried. In eighteen hundred and sixty-three I was shown a sample of cotton gathered in the Mission of San Gabriel, Los Angeles County, which was supposed to be a wild variety. My informant stated that it was produced by a tree some fifteen to twenty feet high, the trunk or main stem being some seven or eight inches in diameter. The cotton was much discolored and injured from lying on the ground after rain, and I could not judge of the value of its staple, which was very fine and quite long. The seeds, however, were of the Sea Island kind, being smooth and black. Subsequently, on visiting the Sandwich or Hawaiian Islands, I found that the Sea Island cotton there became a perennial, growing to the size of a small tree and bearing crops every year. I therefore think that, in all probability, the tree reported at San Gabriel is from the Sea Island seed, the more especially as there are occasionally Winters there without frost. Should my view in this matter prove correct, it is very likely that California will in time take rank with the secondary cotton-growing States in the Union."

Included in the report for eighteen hundred and sixty-seven is a statement of the premiums offered for cotton and cotton goods of California growth and manufacture, to be exhibited at the Fair of eighteen hundred and sixty-eight:

For the best display of cotton goods by one manufactory, (p. 616)	$50 00
For the best piece of cotton sheeting	3 00
For the best crop of cotton, not less than five acres nor less than four hundred pounds per acre, (p. 624)	25 00

And at page six hundred and thirty-four is a list of the State premiums, offered by the Act of the Legislature, as follows:

For the first twenty-five bales of cotton of three hundred pounds each	$750 00
For the first two hundred and fifty pieces of cotton drilling of forty yards each	500 00
For the first two hundred and fifty bales of cotton drilling of one thousand six hundred yards each	1,000 00
For the first twenty-five pieces of calico of thirty yards each	125 00
For the first two hundred and fifty pieces of calico of thirty yards each	250 00
For the first twenty-five pieces of cotton shirting of forty yards each	$250 00
For the first twenty-five pieces of cotton sheeting of forty yards each	250 00
For the first book of not less than seventy-five pages on the mining and industrial resources of California, printed on California paper, stitched with California thread, and bound in California skins and boards	125 00
For the second of same character and description	62 50
For the third of same character and description	37 50
For the first twenty-five packages of cotton seed oil, twenty gallons each	250 00
For the best plantation of cotton of not less than two and a half acres, in bearing, of good staple	250 00
For the first twelve and a half acres of cotton, in bearing, of good staple	500 00
For the first twenty-five acres of cotton, in bearing, of good staple	750 00

NOTICE.—For double the quantity of each article named above, double the premium, and for four times the quantity four times the premium named will be given.

EIGHTEEN HUNDRED AND SIXTY-EIGHT AND EIGHTEEN HUNDRED AND SIXTY-NINE.

The reports of the State Agricultural Society and its annual Fairs for eighteen hundred and sixty-eight and eighteen hundred and sixty-nine are in one volume.

At page one hundred is the list of premiums awarded for manufactured goods, viz:

Oakland Cotton Mills, Oakland—Cotton goods made by one factory: First, fifty dollars, (forty pieces of cotton cloth).

Cotton is not otherwise alluded to in the reports for eighteen hundred and sixty-eight or eighteen hundred and sixty-nine.

EIGHTEEN HUNDRED AND SEVENTY AND EIGHTEEN HUNDRED AND SEVENTY-ONE.

The Reports of the State Agricultural Society and its agricultural Fairs for eighteen hundred and seventy and eighteen hundred and seventy-one are in one volume.

At page six of the report appears the following brief mention of cotton culture:

"Cotton and the ramie plant have both been so successfully cultivated in the State within the past few years that there can no longer be entertained any doubt that we shall soon be able to excel, in the production of the former of these vegetable fibers, the best cotton districts of the Southern Atlantic States, and dispute with China and the Asiatic islands the monopoly they have so long sustained in the cultivation of the latter."

In the Report of the State Board of Agriculture for eighteen hundred and seventy (at page 11) occurs the following mention of cotton culture in California:

"Experiments in the cultivation of cotton have been successfully made on a small scale in all the valley portions of our State. In eighteen hundred and sixty-four several parties, stimulated by the premiums offered by the Legislature, planted in some of the southern counties as high as a hundred acres each. They all labored under the disadvantages of want of experience and skill in the business, and want of good seed of the varieties adapted to our soil and climate, besides many other adverse circumstances that always attend the introduction of new industries into new countries on a large scale, without previous preparation. The results of these large experiments were more than could have been expected under the circumstances.

"The crops from the seed of the varieties known as the Petit Gulf and Tennessee Upland were more than an average of crops from the same variety grown in the Southern States. The quality was pronounced, by experienced judges, good.

"Owing to the difficulties of securing, preparing, and marketing the cotton, and there being no longer any hope of encouragement by the State, the cultivation was abandoned. Experiments have been made in the Merced Valley during the past season, however, by a gentleman of great experience in cotton culture in the Mississippi Valley, which prove to his entire satisfaction that nearly all our great river bottoms are peculiarly adapted to the successful and profitable prosecution of this industry. The average yield of cotton per acre in the Mississippi River bottoms is two hundred pounds, while by the experiment referred to five hundred pounds was produced per acre. The product was sent for examination to the Board of Cotton Brokers of Memphis, Tennessee, and was by them pronounced equal to the best Middling Upland of the South, the staple being finer. It has been the generally received opinion in the South that a good supply of Summer rains was indispensable to the successful production of cotton; but the experiments made here prove the fallacy of this theory, and seem to point to its opposite as more correct—that cotton produced without Summer rains is superior.

"The Petit Gulf seed, and varieties derived from it, are recommended for planting in this country.

"Quite a large breadth of land in the Merced Valley will be planted to cotton the coming Spring, and we indulge strong hopes of its satisfactory success. Its general cultivation would be of great value to the State, both to agricultural and manufacturing industries. It would furnish employment to labor during those portions of the year when such employment is now most difficult to obtain. Until our industries are so diversified and multiplied as to give labor employment the year round, California can never come up to a proper maximum of prosperity."

In the report of the State Surveyor General for eighteen hundred and seventy-one (at page 99), among the notes of the agricultural statistics of the different counties of the State, is the following letter from the County Assessor of Merced County:

SNELLING, August 12th, 1871.

Hon. JOHN W. BOST, *Surveyor General:*

SIR: In making my report to you I forgot to mention a very important matter connected with the agricultural interests in this county and State. I hereby officially report to you one hundred acres of cotton, planted by J. M. Strong, on the old Gwin Ranch, which bids fair to produce a most excellent crop, notwithstanding the unfavorable Spring. It is as fine a field of cotton as can be seen in any country; and old cotton raisers tell me that they never saw a field of cotton in their lives which promised as heavy a yield as this one. Should this field open well the cotton experiment in this portion of California is a grand success, and the beneficial results to this State can hardly be estimated.

There are thousands of acres of land in this county that will produce cotton, and there is no doubt that it can be tented here with one half of the labor required in the cotton States.

Please give this item a notice in your report to the Legislature.

I am, very respectfully yours, etc.,

A. M. HICKS,
County Assessor of Merced County, California.

The reports of the State Surveyor General, concerning the agricultural statistics of the State, are compiled from the returns made annually to him by the Assessors of the different counties. As little or no compensation is allowed to these officers for this portion of their duties, which, if carefully performed, would involve great labor, they regard this work as unpaid, and often neglect its performance, and their reports are therefore usually imperfect, because incomplete, the omissions being more apparent than the performance.

The following, excepting the letter above given, are the only mentions of cotton production observed in these reports:

1866—San Bernardino County, 2 acres; yield, 150 pounds.
1867–8—Lake County, ½ acre; yield, 50 pounds.
1867–8—Los Angeles County, 4 acres; yield, 500 pounds.
1868–9—None reported.
1869–70—None reported.
1870–71—Merced County, 100 acres; yield, ——.
1866—Cotton used in Oakland Mills, 100,000 pounds.
1866—Cotton used in San Francisco Wadding and Batting Mills, 10,000 pounds.

In the report of the United States General Land Office for eighteen hundred and seventy-one, at page two hundred and thirteen, will be found the following mention of cotton growing in California, from the report to the department by J. R. Hardenbergh, United States Surveyor General for California:

"Experiments have been made in cotton growing in different parts of the State, and the results indicate that this plant can be cultivated in many portions of the country, particularly on the reclaimed lands bordering on the principal rivers."

At the Eighth Industrial Exhibition of the Mechanics' Institute of San Francisco, held in August and September, eighteen hundred and seventy-one, the following were the entries of cotton on exhibition (Report, p. 49):

363—W. S. King: sample of California cotton.
1680—John W. Young: sample of cotton from Utah.
1730—J. M. Strong: sample of cotton from Merced River Ranch.

Concerning which the Committee on Vegetable Productions, Fibers, etc., reported as follows (p. 45):

VEGETABLE PRODUCTS.

"In this department, the most important and interesting display made was that of the samples of cotton from California and Utah, the specimens exhibited proving that the culture of this great staple on this portion of the Pacific coast is no longer a doubtful experiment. The efforts of Colonel J. M. Strong, who is largely engaged in the culture of cotton in the rich region of Merced County, have been crowned with the fullest success, and his crop the present season will, it is estimated, yield a return of a bale and a half to the acre, which is above the average rate of the cotton-growing region of the Southern States. This gentleman, who has for some time past been busily engaged in securing his extensive crop, received from the East a short time since a gin, with all the necessary apparatus for cleaning, which removes every obstacle in the way of turning out an article equal to that produced in any portion of the world. With this successful culture, it is anticipated that the important business of the manufacture of cotton, commenced and successfully prosecuted here some years since, but measurably abandoned, or the machinery diverted into other channels, on account of the want or scarcity of the raw material, will be revived and become one of the important industries of the State.

"The interesting and valuable essay upon this subject which is given in another portion of this volume, will give the readers an adequate idea of the mode and extent of cotton culture in California."

The essay alluded to is that of Solomon W. Jewett, already given, while referring to the experiments of eighteen hundred and sixty-five.

The foregoing may be considered as comprising the official history of cotton culture in California, as it is to be gleaned from the reports published by those whose duty it was to investigate the matter carefully, for the purpose of determining the award of premiums offered by the State Agricultural Society and the State Legislature. As the statements were made at the time, by those directly interested and who had conducted the experiments themselves, and generally under oath, they contain the fullest and most reliable information obtainable. Experienced cotton growers can judge for themselves concerning the errors, omissions, and neglects which are disclosed, and the guarantee they afford of future success in the business, when it is conducted in suitable localities, on a proper basis, and under prudent management, guided by the light of experience gained.

In the latter part of eighteen hundred and seventy the subject wa again taken up and discussed in the newspapers of this State by Messrs J. M. and J. L. Strong, the former of whom was located in Merce County, and both of whom had much experience in cotton planting i the Mississippi Valley. Their views and statements of facts are therefore entitled to great weight, and their letters cover nearly the whol ground in relation to the climate, soil, facilities, cost of production, an profits to be realized. For this reason they are given in full. The following letter was published in the *Morning Call* of October thirteenth eighteen hundred and seventy:

COTTON CULTURE—ITS ADAPTABILITY TO CALIFORNIA.

DICKSON (Ala.), October 3d, 1870.

EDITOR MORNING CALL: Through the kindness of my friend, J. M Strong, Esq., of Snelling, Merced County, I have received a late issu of your paper, containing an article on "Cotton Raising," in whic there are some allusions to the contents of a private letter addressed t Colonel Strong by me, but not designed for publication. When apprise by Colonel Strong of the publication of the letter, I addressed a comm nication to the *Scientific Press*, published in your city, discussing th question of the adaptability of your soil and climate to cotton production, designed to supply an omission of that journal, in presenting to th public the claims of California as a home for immigrants. I trust tha article, imperfect as it is in many respects, will be published. I fee much interest in this matter, and have studied carefully all the detail furnished by my friend, which bear upon past efforts to produce th staple. Since writing the article referred to for the *Press*, I hav received the report of the Transactions of the State Agricultural Society embracing the results of efforts made in different localities to produc cotton. I have also received a statement containing the bounties offere by the State for the production of given quantities.

I venture to offer, for the benefit of those interested in this matter,

A FEW PRACTICAL OBSERVATIONS.

First—You will observe that no effort has been made, excepting tha of Colonel Strong, to grow cotton in the San Joaquin and Merced Va leys, and that all the valley region is to be added to that portion o California referred to in the report of the State Agricultural Society The two areas combined equal that of the entire State of Mississipp which produced in eighteen hundred and sixty, one million two hu dred and two thousand five hundred and seven bales of cotton, and i addition a food crop amply sufficient for the sustenance of her whol agricultural population. Colonel Strong's several experiments in thi region would indicate one bale, of five hundred pounds weight, as a average yield per acre, while the average yield of Mississippi does no reach one bale, of four hundred pounds weight, to *three acres*.

Second—No effort to produce cotton in your State will be attended wit success unless under the direction of a farmer possessed of practica experience in cotton culture. Every variety of soil requires specifi treatment, and what that treatment must be is determined by experienc The successful management of the crop in a given locality will furnis the mode of treatment for that locality. The failure to produce cotton in your State hitherto is due, beyond doubt, to want of practical experience in the management of the crop. For like reasons, though in other respects better farmers than we, every Northern man who attempted to grow cotton in the South since the war returned home bankrupt.

Third—If it is questioned whether cotton can be successfully produced, under the conditions specified, in California, let those who feel interested in the matter visit Colonel Strong, at Snelling, see the two crops produced under his direction, and be fully satisfied. They will see crops that will yield at the rate of *one and a half bales per acre*, cultivated at an expense so small that I dare not hazard my veracity by stating it. Colonel Strong is a thoroughly practical California farmer. He came to the South at the close of the disastrous year of eighteen hundred and sixty-seven, to familiarize himself with cotton culture. For two years he directed the cultivation of an Arkansas plantation owned by me, near Memphis. His second crop was one hundred and twenty-five bales, of five hundred pounds each, on two hundred acres of land—a yield largely in excess of any previous yield on the same land—as, also, of the production of neighboring plantations. It was due to the introduction of improved implements, and a more thorough system of culture than had been previously adopted. Its continuation depended upon the ability of the farmer to hire labor for wages, which could not be done. Our labor system is that of "shares," the laborer directing cultivation—the most pernicious of systems—effectually barring all progress. The advantages offered by his own State induced Colonel Strong to return to California, much to my regret.

Fourth—If it is doubted whether the production of cotton in California will prove remunerative, test it by the following figures:

HOW COTTON CULTURE WILL PAY.

Assuming, as an average yield, one half of the amount indicated by the experiments of Colonel Strong, ten strong hands will produce one hundred and sixty thousand pounds of seed cotton, or five hundred bales, of four hundred pounds each, of lint—worth, at twenty cents per pound, ten thousand dollars.

The cultivation of a cotton crop is here our only preparation for sowing grain; hence, the same labor required to *produce* this cotton will put in two hundred acres of wheat, say, yielding twenty bushels per acre, or four thousand bushels, worth, at fifty cents per bushel, two thousand dollars. Volunteered the third year, yielding ten bushels per acre, say two thousand bushels, worth fifty cents per bushel, one thousand dollars. Thus the labor of ten hands, one year, produces crops, not including the expense of harvesting, valued at thirteen thousand dollars.

You will perceive this estimated cotton yield, is *one half* that made by Colonel Strong. So, also, of the wheat crop sowed with preparation. His statement is, that, with thorough preparation, your wheat lands will yield from thirty to forty bushels per acre. My estimate of the volunteer crop is the same as that of Colonel Strong, because it is something wholly unknown to me, and I am not prepared to alter it. The expense of culture, each farmer can estimate better than I, it varying with the locality. The basis of the estimate would be: wages, cost of harvesting cotton, (one dollar per one hundred pounds), rent of land, interest on capital invested in team, tools, etc., feed of hands, feed of team, wear and use of team, and damage.

If your State, or individuals, will furnish the capital to make a crop of one hundred bales, I will forward the requisite quantity of Dickson seed to Colonel Strong to complete the planting.

AN ECONOMIC VIEW.

The importance to your State of the development of this grand industry cannot be over-estimated. Certainly your people will not allow the small sum necessary for its successful inauguration to bar the way. The systems of labor and culture at the South, if adhered to, will render the condition of the planter one of periodic ruin. Nearly the whole food supply of our population, agriculturists included, is annually drawn from the Western States. We annually export our very best soil to these States in the form of cotton, to pay for the food which we should produce at home. Thus we are always at the end of our resources; and when crises like those of eighteen hundred and sixty-seven or eighteen hundred and seventy arrive, our crops are forced upon a fluctuating or declining market, to meet the debts we have contracted to produce them. You are so situated that you can produce grasses and grains—food of every description, much cheaper than you can possibly buy it. Hence, the obviously proper course would be to put all the surplus products of the farm, in the form of grain and meat, into cotton, and to your distant markets transport the less bulky article.

The acreage per hand cultivated in cotton and corn before the war, was represented by ten of the former and five of the latter. The average area in cultivation per hand, in eighteen hundred and seventy, cotton and corn inclusive, will not exceed seven and one half. It costs, in the Mississippi River bottom, twelve and one half cents per pound to deliver cotton in Memphis or other markets where the transportation does not exceed one dollar per bale. I mean to say, that every pound produced and sent to market costs twelve and one half cents delivered, under the conditions specified. On the uplands, where the yield does not exceed a bale to three and four acres, it costs fifteen cents per pound. To-day, the cotton it costs twelve and one half to fifteen cents per pound to produce, is worth from nine to fourteen and one half cents per pound in the Memphis market. It must be sold to pay the cost of producing it, and thus it is demonstrated that the condition of the planter here is one of periodic ruin. All the profit to result from the rapid increase of price consequent upon the cessation of hostilities is lost to him, because of his failure to produce his own food, retaining his cotton as profit. Production at the South reached its culminating point in eighteen hundred and seventy. The two years of eighteen hundred and sixty-seven and eighteen hundred and seventy mark the periodic ruin of the Southern planter. From this date forward there will be a steady decrease in quantity and increase in price, until the planting community will again be tempted to over-production at the expense of food, and a crisis will as certainly bring ruin.

CHINESE LABOR.

A single objection is presented to the infallibility of this view, in the prospect of an unrestricted importation of Chinese laborers, at such a low rate of wages as to reduce the cost of production to such a limit as will revive the quantity. How little consideration is due to this objec tion, will be seen in the fact that it costs one hundred and thirty dollars in gold each to import these laborers, at an expense in wages of ten dollars per month. Now, if ever, is the season to inaugurate the culture of cotton in your State. Everything that enters into production is cheaper there than here. Whatever is expended in production is expended at home, and that builds up the wealth of the State. Every pound produced will be manufactured profitably at home. The two interests will grow up side by side, keeping pace with each other. The production and manufacture of cotton is a necessity to your control of the trade of that vast region which lies west of the Missouri River, and where San Francisco must fight a battle of prices with her eastern competitors. I apologize for the length of this communication, but much yet remains to be said. Call my friend Colonel Strong before your Chamber of Commerce, and hear his views. He has long and earnestly devoted himself to the investigation of the subject, and he deserves the encouragement of his people. I trust you will pardon me, in view of the necessity, for calling attention to his labors. We can all attest the truth that a prophet is not without honor, save in his own country!

I am, sir, very respectfully, your obedient servant,

WILLIAM DICKSON.

The following article, containing extracts from a letter by Mr. J. M. Strong, of Merced County, to Governor Downey, of Los Angeles, was published in the San Francisco *Evening Bulletin*, of October eighteenth, eighteen hundred and seventy, but taken from the Sacramento *Reporter* of a few days previous:

SUCCESSFUL COTTON GROWING IN CALIFORNIA.

"I have tried the third crop here, on a small scale, and have as fine cotton as I ever saw growing. I have been cultivating cotton the past two years in the Mississippi bottom, and am satisfied that I can raise it here two cents a pound less than it can be raised there."

He writes that cotton raised by him in Merced, in eighteen hundred and sixty-five, was classed by Memphis cotton brokers as "Full Middling." Taking two hundred acres of land as a basis, Colonel Strong thus estimates the costs and profits of cotton cultivation:

Twelve hands, $25 per month		$3,600
Feed of team		500
Feed of hands		1,500
Extra gathering		500
Ginning and baling		500
Blacksmithing		100
Total expenses		$6,700
Proceeds one hundred and fifty bales, $90 each	$13,500	
Deduct expenses	6,700	
		6,800
Value of seed, seventy-five tons, at $15 per ton		1,125
Net proceeds		$7,925

If any individual or company in your section will try the experiment, I will make a hand—superintend the affair—at reasonable wages, and take my pay out of the net proceeds of the crop. I am a practical farmer, and can give satisfactory references, both here and in the South. I am unable to undertake the thing on my own account. If it should prove a success, it would be of inestimable value to your section, to say nothing of the additional benefits of home manufacture.

The *Reporter* adds the following: "Probably at least twelve hundred dollars more should be deducted for rent of land, marketing expenses, etc. A margin of profit of five thousand five hundred and twenty-five dollars would still be left—over twenty-five dollars per acre. Allow half this sum for short crops and depreciation in the market price of cotton, and the profit of cotton culture would still be over twelve dollars per acre—more than is yielded, on an average, by wheat."

It is now pretty clearly demonstrated that cotton and sugar can be produced in California, sufficient, at least, for home consumption.

[At the time the *Reporter* made the foregoing comment, land similar to the above could be purchased for very little, if any, more than the sum it proposed to allow for rent.—Ed.]

The following letter appeared in the San Francisco *Evening Bulletin* of November eleventh, eighteen hundred and seventy. It contains much information—not specially relating to California, but to the cotton of other countries—which is necessary for a comparison of our cotton with that raised elsewhere:

CALIFORNIA COTTON UNDER THE MICROSCOPE—COMPARISON WITH COTTON OF OTHER COUNTRIES.

DICKSON (Ala.), November 3d, 1870.

EDITOR BULLETIN: Inclosed find an interesting letter from Dr. I. E. Nagle, of New Orleans, containing the results of a microscopic examination of California cotton, produced by Colonel J. M. Strong, of Snelling. You will observe that it compares favorably with Brazilian and

Egyptian cottons. The learned doctor thinks it superior to our best uplands for spinning purposes, and he asserts that the effect of your climate is an improvement in the staple yielded from the same seed as planted upon Southern uplands. Believing that your country is destined to occupy a prominent position in the production and manufacture of the staple, I have always manifested great interest in all that is calculated to direct the attention of your people to its capacity therefor.

Your obedient servant,

WILLIAM DICKSON.

NEW ORLEANS (La.), November 1st, 1870.

MAJOR JOHN L. STRONG AND COLONEL WILLIAM DICKSON, *Dickson, Ala.:*

DEAR SIRS: I have received your letter of the twenty-fifth of October, together with the open bolls of California cotton from the ranch of Colonel Strong. As requested by you, I have examined it under the microscope. The results of my examination will be found at the close of this letter. As you design forwarding the letter to California for publication, I have taken the pains to collect the results of similar examinations, by experts, of the different varieties of cotton. Thus your California friends will be able to compare the staple of their own State with that of other countries. I have made use of the work of Royle. The different kinds of cotton which are imported and used in Great Britain have been examined under the microscope by Dr. Ure and Mr. E. Wilson. To their observations we are indebted for the following measurements. In examining a sample of cotton, it is usual to take a portion of it between the forefingers and the thumb, and laying the portions as they are successively drawn out back again on and parallel to the filaments from which they have been drawn out, and repeating this process several times, small tufts are formed, in which the respective lengths of staple may be observed. The fibers of cotton, when drawn out from the mass from which they appear entangled, display so many irregular twists as to give them a jointed appearance, and, as Mr. E. Wilson observes, "in this state they resemble a string of oval brads, pointed at each extremity, and connected by their points."

The entire fiber appears to taper finely to both ends, that which is adherent to the seed being somewhat the thickest. Under the microscope the fiber is observed to be continuous, moderately twisted, flat, ribbon-like, clear, and transparent in the middle, and opaque toward each margin. The finer and more uniform the fiber, and more inclined to twist, the better is it suited for spinning into fine yarn. But if the fibers are short, broad, and formed of flimsy ribbons, they are less suited for machine spinning, though they may yet, as before mentioned, be twisted into threads by the delicate fingers of the Hindoo.

The value of cotton depends on the length, strength, and fineness, as well as on the softness and equality, of the fiber; but these essential qualities are modified by color and cleanliness—that is, freedom from knots and impurities, so that there may be less waste in spinning. Formerly color had great influence, but now the great distinction is into long-stapled and short-stapled. The different kinds of cotton differ from each other, not only in the above properties, but also in considerable differences in quality between the different samples of the same kind of cotton. "The finest quality of Sea Island is sometimes worth three times as much as the common quality of the same class. The variation of quality in most of the other denominations is from twenty to twenty-five per cent, and in none of them is more than fifty per cent." These are sometimes divided into three or four qualities, as "ordinary," "middling," "fair," and "fine." At other times these are still further subdivided, as into "inferior," "ordinary," "middling," "good middling," "middling fair," "fine," or "good and fine." "Except the better qualities of Sea Island, there is no sort of cotton which is now confined in its use to any particular or exclusive purpose. By mixing different sorts together, and by careful management in preparing the mixture for spinning, the manufacturers can now make a substitute for almost any particular kind of cotton, except the very best. It is only requisite to add that the long-stapled cottons are generally used for the twist or warp, and the short-stapled for the weft."

Sea Island, or long-staple cotton, the most highly esteemed of the cottons, is as remarkable for the length and fineness of its fiber as for its silky softness. Among white cotton it is distinguished by a slight yellowish tinge of color. This kind sells in England from eighteen pence to two shillings a pound. The quantity is limited, from the peculiarity of physical circumstances required for its production. The fibers are equable, about one and a half inches in length, and, examined under the microscope, about one two-thousandth of an inch in diameter, formed of flattened cylinders more transparent in the middle, opaque toward the margin, and more or less twisted. Dr. Ure has observed some kinds crimped transversely, with irregular bandages, and some with flimsy ribbons and warts, which adhere to the side of the filaments, called neps by spinners. Mr. Wilson describes the Sea Island as thick and narrow, but looking the finest of all as seen with the naked eye. This kind is employed for spinning the finest yarns.

Upland or short-staple cotton, under which names are now usually included the produce of the interior of Georgia and Carolina, as well as of Alabama, Mississippi, Louisiana, Texas, Arkansas, Florida, and Tennessee, used to be called Bowed, from the cotton of Georgia having been formerly cleaned with the Indian cotton bow. Though shorter in the staple and unequal, this is white in color, much esteemed, and forms the bulk of the cotton of commerce. The staple is one inch to one and a quarter inches in length. The best kinds are fit for spinning as high as No. 50, some higher; the shorter kinds are worked up into No. 30 and other coarser yarns; but mixed with good Egyptian or Pernambuco cotton, even these can be spun into higher numbers. Under the microscope the fibers appear less twisted than others, some as cylindric fibers, with many twists, of the width of about one fourteen-hundredth of an inch, thin and broad.

EGYPTIAN COTTON, ETC.

The best Egyptian cotton ranks next to Sea Island in quantity and length of staple, though it is not usually so well cleaned. It was only about the year eighteen hundred and twenty-one that the Pasha began the cultivation by importing seed from America and the Mediterranean, and from Brazil. These different kinds may therefore be met with in cultivation there, though the Sea Island yields the best kind of cotton, called Maho, which is used like that kind for the finest yarns. It has a staple of one and one fourth to one and two thirds inches in length, from one fifteen-hundredth to one two-thousandth of an inch in breadth, uniform, spiro-cylindrical, thin and broad. Some excellent cotton has been sent from Port Natal. That from the Island of Bourbon used formerly to be much esteemed. Some has also come from the west coast of Africa.

WEST INDIAN COTTON.

The West Indies supplied England with the largest quantity of cotton in the eighteenth century; but the cultivation was neglected when sugar became more profitable, and the imports have greatly fallen off. But the cotton is long-stapled, silky, and may be produced of a quality equal to Sea Island. Bourbon cotton is the same species that is cultivated in the West Indies. The cotton of Porto Rico was at one time considered to be the best; that of San Domingo has been spun into No. 100 yarn, and some of the finest cotton ever grown was raised in Tobago, by Mr. Bobly, between seventeen hundred and eighty-nine and seventeen hundred and ninety-two. The cottons of Barbadoes, Guadaloupe, and Jamaica were also highly esteemed. Bryan Edwards (History of the West Indies, 1793) mentions a green-seeded cotton, from which the cotton can only be separated by hand. From this comes the celebrated green-seed variety of the Southern States. Inferior kinds, or short-stapled cottons, may, therefore, be imported from these islands. Dr. Ure describes the San Domingo cotton as composed of narrow twisted ribbons, from one one-thousandth to one twelve-hundredth of an inch in breadth, with a few flattened cylinders and some spiry fibers.

SOUTH AMERICAN COTTONS.

In the year seventeen hundred and eighty, Mr. Bryan Edwards states that "the finest-grained and most perfectly-cleaned cotton that was brought to the English market was, he believed, that of the Dutch plantations of Berbice, Demerara, Surinam, and of the Island of Cayenne;" and that these cottons sold at that time for two shillings a pound. The first importations of cottons are stated to have taken place from Maranham, in the year seventeen hundred and eighty-one. The Pernambuco was afterwards sent, of so fine and superior a quality as to be highly esteemed, and its price ranked next to the Sea Island. The staple is long and fine, generally well cleaned, glossy; some with a yellowish tinge; spins into a stout yarn, and is esteemed by hosiers. It continues to be imported into England from all these places, as well as from Bahia, Maceio, Para, and Ceara, also from Peru; inferior qualities from Carthagena. The fiber is in length about one and one tenth to one and one fifteenth of an inch; is cylindrico-spiral, about one fifteen-hundredth to one twelve-hundredth of an inch in diameter; some with a few twisted ribbons and warty excrescences on the sides of the filaments.

EAST INDIAN COTTON.

Considerable, though varying quantities of cotton, we have seen, are imported from India. It varies a great deal, as imported from different districts, is esteemed for its color, though all is short-stapled, and generally sent in a dirty state to market. In this country it is known by the name of Surats, Madras, and Bengal, while the name *surats* is often used as a general name for Indian cottons. Some of this cotton is of good quality and fit for general purposes, while the great mass is only brought where American cotton is scarce and dear. The cottons of Surat, of Broach, and of Berar, are all included under the name of *surats*, forming the kinds which are most esteemed here. The cottons of Cutch, of Candeish, etc., are likewise exported from Bombay; whence, also, England obtains the cotton of Compta, which is produced in the southern Mahrattaern country, and is the most southern part of Berar. These are also cottons naturally of good quality. Under the head of Madras, the cottons of Salem, Coimbatore, and Finmorlly are included, which rank higher than the cottons of Bellary, Guntoor, and the ceded districts. Bengal cottons include those from the northwest provinces, from Bundlecund, as well as what is imported from Nagpore and Berar. The latter kinds are of the same quality as are exported from Bombay; but they are generally used up by the weavers of the upper parts of the Bengal Presidency. Some Bourbon cotton is also exported from Madras—the produce, chiefly, of the southern provinces of the peninsula. Though esteemed, it is inferior to the original Bourbon. The Indian cottons, under the microscope, appear less spiry; a few flattened cylinders, with many flimsy ribbons and warty excrescences, varying in diameter from one one-hundredth to one one-thousandth of an inch. Some are one fifteen-hundredth to one two-thousandth of an inch. In length differing from seventeen twentieths to one one-tenth of an inch.

MEDITERRANEAN COTTONS.

As scarcely any cottons are exported from the Mediterranean ports to Europe, it will not be necessary to enter into any investigation of their merits. We come now to

CALIFORNIA COTTONS.

The staple is long and fine. It is well cleaned and remarkably white and glossy. It is further remarkable for its strength and silky softness. The fibers are equable, one and one fourth inches in length, and, examined under the microscope, from one fifteen-hundredth to one two-thousandth of an inch in breadth, formed of flattened cylinders, strongly resembling Sea Island, and more or less twisted. It is singularly free from flimsy ribbons and warty excrescences, and for spinning into fine yarns, is superior to the best of our Southern States "Uplands."

For the benefit of the agriculturist, the different varieties might yet be subjected to further microscopical examination, to ascertain the effects of the different processes of culture in the several soils and climates of different countries, on the length, breadth, and smoothness of the fiber. This suggestion originates in a comparison of the California staple, produced from Alabama seed. The obvious change, effected by climate in this instance, being to render the staple stronger, finer, and softer, without alteration in other respects.

Claiming your indulgence for any shortcoming which may attach to this hurriedly prepared examination,

I am, gentlemen, very respectfully and truly, yours,

DR. I. E. NAGLE.

In the edition of the *Bulletin* of November eleventh and twelfth, this article was commented on hopefully, and two small successful experiments in San Diego County were mentioned. The San Francisco *Morning Call*, in November, eighteen hundred and seventy, contained the following letter from Colonel J. M. Strong:

COTTON CULTURE IN CALIFORNIA.

COULTER'S HOTEL,
SNELLING (Cal.), Nov. 30, 1870.

EDITOR MORNING CALL: I respond, with some reluctance, to the invitation contained in your issue of the thirteenth of October. The reasons are obvious. I have furnished all the data in my possession, relative to the California cotton question, to my Southern friends, who, having used it freely in several publications in the San Francisco journals, have left me nothing new to say. The advantages of our State are well stated by Colonel Dickson. They consist: first, in a climate perfectly adapted to the production of cotton; second, in a steady, well regulated system of labor, with facilities for an unlimited supply.

First—As to climate. All experimental tests hitherto made in the State, and especially my own, have tended to explode the theory that Summer precipitation is indispensable to the production of cotton. Not only so, but that irrigation at all, in some localities, is a positive injury rather than a benefit to the growing plant. The lesson of these several tests would seem to be, that for the perfect development of the plant uniformity of seasons is the characteristics demanded. That precipitation is unnecessary to the development and maturity of the cotton plant, was asserted by David Dickson, of Georgia, in eighteen hundred and sixty-seven. Mr. Dickson says: "The ability of the plant to withstand drought is limited by the fertility of the soil and the depth of culture." He then proceeds to state the depth of culture and soil necessary to enable the plant to withstand droughts of given duration. Mr. Dickson is the standard authority on cotton culture at the South. In a recent communication on the subject, Mr. Dalton, of England, claims that he has, by careful examination, shown that where there is mellow soil for three feet below any crop, it can defy the severest drought, and come to maturity without a drop of rain. If these views be correct, and our practice confirms them, as I shall hereafter show, we may pass to the second consideration, suggested by climate influence. The cotton belt of the Southern States lies almost entirely within the isothermal lines of sixty degrees and seventy degrees. Reference to a physical atlas will show that embraced within this zone are the fertile valleys of the Sacramento and San Joaquin, as also nearly the whole of Southern California that is available for culture. Hence, if the exclusive theory of fiber climate has not been completely exploded by repeated tests within the last ten years, nearly the whole of California available for culture would fall within the cotton zone, and, therefore, meet the demands of this exclusive theory. As facts, however, are incontrovertible, I here give you the results of my own experience—all you desired of me.

HISTORY OF COLONEL STRONG'S EXPERIMENT IN MERCED COUNTY.

In the year eighteen hundred and sixty-five I procured a sufficiency of seed to plant two acres of ground. I was born on a cotton plantation, and lived on one until eighteen years old, when I emigrated to California, in eighteen hundred and forty-nine. My recollections of culture and management were very imperfect. I had a very strong impression, however, of the preference given to sandy soils over all others, when I left Mississippi. I therefore selected the lightest sandy soil I could find on a farm of four hundred acres, and planted. In this I made a great mistake, reducing the yield materially. The seed was deficient, consequently the stand was irregular. But with one working with plow, and some with the hoe, I gathered one thousand six hundred pounds of seed cotton per acre, equal to five hundred pounds of lint. A fair sample of the crop was forwarded to the Board of Brokers, at Memphis, for classification, and pronounced equal in all other respects to the best uplands of the South, and for fineness and softness of staple superior. Its grade was "Full Middlings."

In the present year (eighteen hundred and seventy) I returned from the South in March, bringing several varieties of seed. For causes unnecessary to mention, I did not get my seed planted until the twentieth of June. I have not seen such cotton anywhere in the South. It will yield at the rate of seven hundred and fifty pounds of lint, or one and a half bales per acre. You will thus perceive that the yield is respectively twice and three times as great as the average of the Mississippi River bottoms, the most productive region of the South. Now, note particularly that each crop was worked only once, or one eighth as often as is indispensable to successful production South. Three times the quantity produced, with one eighth the labor, needs no comment.

If the question of cotton supremacy, as announced by the British Cotton Conference of eighteen hundred and sixty-three, is a question of *price*, and price, as proclaimed by Governor Alcorn, in the Southern Commercial Convention of eighteen hundred and sixty-nine, is regulated by *productiveness*, what country on the globe can compete with California? Granting equalities in other respects, her uniform climate, freedom from the grasses and weeds which spring from Summer precipitation, from destructive insects, Autumn rains, and early frosts, furnish her with inestimable advantages over other sections subject to all these drawbacks. And yet, a further advantage, in point of profit, lies in the fact that these advantages enable her to produce entire crops of a single grade, and that grade the highest. Other countries, on the contrary, produce crops divided into four different grades, about one twelfth of which only reaches the highest, the larger proportion being comprised in the two lowest.

Second—As to labor. The following extracts from different portions of the South confirm my own views of Southern labor. I therefore append them. Let the South herself speak:

A correspondent of the *Memphis Appeal*, writing from Alabama, says:

"There was not more than a half crop raised in this valley this year; and the system adopted in the Spring to raise the crop will result in bankrupting nearly everybody. Country merchants have advanced to negroes, and some whites, taking liens on their crops and stock. In

> consequence of a short crop and low prices, persons thus obtaining supplies cannot pay twenty-five cents on the dollar. The result will be that the negroes and whites who obtained supplies by that system may expect to be sold out and left without anything."

The Columbus (Georgia) *Sun*, on the failure of the negro to pick, says:

> "A recent trip into Alabama, as far as the Court House of Pike County (a distance of eighty-five miles) revealed to us the fact of great tardiness in gathering the small crop of cotton made. In our travel we saw many fields from which not a boll had yet been picked. Inquiring the cause, we learned that the low price to which the staple had declined had so disheartened the negro laborer, who, in most instances, had an interest in the crop, that it was with great difficulty he could be induced to pick cotton. Many expressed fears that, from this cause, a large portion of the small crop made would be lost in the field. We find, too, on examination of our exchanges from the different parts of the cotton region, that this feeling on the part of laborers is not confined to the localities mentioned above, but that it is general among laborers, who have been croppers, all over the cotton region."

The following, which is copied from the Vicksburg (Mississippi) *Herald*, of the fourteenth instant, is one of the hundreds of almost similar complaints which we read in our exchanges west of us. The *Herald* says:

> "Unless a marked change can be effected by the planters of the country in the honesty of their employés, we fear that the issues of the present year's agricultural operations will be of a lamentable character. Cotton is barely bringing the cost of its culture, and so great is its depreciation in the market, that laborers have despaired of realizing any net profits from the sale of their productions, and are, therefore, actually abandoning their own crops, to save wages by picking for others. This is not the worst feature which has been developed by the low price of cotton, and the unusual stringency of the money market, among the laboring classes of the country. We have repeated accounts of larceny from our planters, who represent that their hands are nightly engaged in stealing their seed cotton, and carrying it to the small country stores, and some of them even bring it to this city, where it is sold by them for whatever they can get."

I will only presume to add, from my personal experience and observation, the following: In the years eighteen hundred and sixty-six and eighteen hundred and sixty-seven, on two plantations near the one managed by me, in the Mississippi River bottom, there died eighty strong men out of one hundred and sixty, from climatic diseases. In these alluvial districts you cannot expect prompt and energetic discharge of duty from a laborer whose system has been sapped of its vigor by bilious diseases incident to the climate. In the years eighteen hundred and sixty-eight and eighteen hundred and sixty-nine, I could not say I was a sound man one day in each. Our own labor system requires no discussion at home. We may fairly claim that if Southern planters can import Chinese labor at a cost of one hundred and thirty dollars for each man, and return transportation to China, and pay for it ten dollars per month to the man, to produce two hundred and fifty pounds of lint cotton per acre, we can hire the Chinamen at home at the same wages, without additional charges, and producing twice and three times as much per hand, can drive the Southern crops from all markets where we come into competition with them.

What is true of raw cotton is true also of goods manufactured in California. If we will produce and manufacture cotton in California, we can drive Old England and New England from every market that we enter. Three full crops of middling upland cotton can be produced in California, in given localities, at eight cents per pound. The same pound of cotton can be manufactured into goods at from three to four cents per yard. Thus, for example, one pound of cotton is produced at a cost of eight cents; manufactured into eight-ounce goods, two yards cost over eight cents. Total cost, two-yard goods, fourteen cents. The same goods, manufactured of inferior grades of cotton, is worth in Lowell, Massachusetts, seventeen cents per yard, or thirty-four cents. The pound of cotton that produces it is worth in Liverpool, England, to-day (October twenty-fifth), eighteen cents.

To the farmer who desires to plant cotton in California, I would suggest, begin with small quantities of soil. You must understand this crop before you will succeed with it. Break deep; run over it frequently with a cultivator; in August sow and plow in your wheat on the cotton ground; rotate with cotton and grain, and volunteer the third year, where you own the land; produce your own food and everything you can at home. Let your cotton be the profit of your farm. Will it pay? Look here.

First year—Ten hands; cotton, two hundred acres yield at least one hundred and fifty bales, valued at twenty cents per pounds, or one hundred dollars per bale, fifteen thousand dollars.

Second year—Ten hands; new field of cotton; two hundred acres yield one hundred and fifty bales, fifteen thousand dollars. Thoroughly prepared fallowing cotton—grain, two hundred acres, thirty bushels per acre, six thousand bushels, fifty cents per bushel, three thousand dollars. Total, eighteen thousand dollars.

Third year—Ten hands; new field cotton; two hundred acres yield one hundred and fifty bales; value, fifteen thousand dollars. Second field, thoroughly prepared fallowing cotton—grain, two hundred acres, thirty bushels per acre, six thousand bushels, fifty cents per bushel, three thousand dollars. First field volunteered, two hundred acres, ten bushels per acre, two thousand bushels; at fifty cents per bushel, one thousand dollars. Total, nineteen thousand dollars.

Such will be the production under this system for three successive years. However marvelous it may appear, it is built upon the solid foundation of practical tests.

I am, gentlemen, very respectfully, your obedient servant,

J. M. STRONG.

The same paper, on the fifteenth and sixteenth of December, eighteen hundred and seventy, contained the following essay on cotton culture in California, by Major John W. Strong:

CALIFORNIA AS A COTTON-GROWING STATE.

Whatever relates to the development of the material wealth of a State, is not only interesting to its inhabitants, but to all who participate in the result. No industrial interest of California, we venture to predict, has exercised such potent influence upon her future position and prospects as that which is destined to result from the production of cotton. It is a singular characteristic of California, that her climate and physical structure have fitted her to offer a permanent home to the inhabitant of every nationality, in the inducements which exist for the development in which each nation excels. And when we consider the rapid accumulation of industries already in process of development within her borders, with their unvarying promise of success, we look forward to the time, not distant, when in civilization and refinement she will become the "Mistress of the World." She possesses all the essential elements for the achievement of this commanding position. One of those which will contribute most powerfully to promote the result is the development of her resources for the production and manufacture of cotton.

That cotton can be produced in California, has ceased to be a question. That qualities can be produced equal, if not superior, to the best grades now grown in the Southern States, is also true, though not so generally known. That in point of yield per acre and economy of culture, she is without a rival in the civilized world, we are prepared to demonstrate.

The readers of the *Alta* in the year eighteen hundred and fifty-seven—the day and month are lost to us—no doubt smiled while perusing this brief paragraph:

> "CALIFORNIA-GROWN COTTON.—It is as white as the drifted snow, and as silky as the down on the breast of the cygnet. This is a part of the first crop, all told, that has ever been produced in the State. It was raised, it appears, as far north as Shasta, and is equal to anything we have seen in Georgia or Alabama. It does not seem, however, to have been well ginned, inasmuch as we find a couple of seeds laid away in its unsullied texture. But we suppose cotton gins are not quite so common as gold washers here in California, nor will they be for many years to come. Yet no doubt our plains will be white with the bursting bolls of this useful plant, long after the rocker and arastra have ceased from their labors in the mountains. In truth, we own to a strange sensation as we look upon the little flock lying there before us, so gossamer-like that we dare not breathe full upon it, lest it float away like the downy seed we chased in our school-boy days. In this little wool-like lock we see new sources of production, new avenues of wealth opening to the industry and enterprise of the future. In it we have an assurance that California will always be able to cloth her own children; perhaps be able to spare something towards clothing the people of less favored lands."

Study carefully this little production. We do not know by whom it was written—perhaps never shall. But, whoever he was, something of prophetic insight was his, and the great industrial future of California—the germ of which lay hidden in this little specimen—was dimly previsioned to him. Thirteen years have passed since then, in which time has wrought wonderful changes for California—not the least important of them the disappearance of "the rocker and arastra from the mountains." California, which was then just emerging from the chrysalis condition of a Territory, has grown to the proportions of a powerful State, and seems a living realization of the Antean fable; from every touch of her soil she derives new vigor and strength.

EARLY CALIFORNIA EXPERIMENTS.

Relative to the efforts that have been made to produce cotton in California, our sources of information are meager and unsatisfactory. The report of the "Transactions of the State Agricultural Society" is mainly relied upon—but even that authority freely confesses the paucity and inaccuracy of detail that characterize such as it gives. The statement is made that "planters as a class are very reticent in giving any information regarding their experience." We gather from it, however, that in eighteen hundred and sixty-five about four hundred and fifty acres were devoted to the culture of cotton in Tulare and Los Angeles Counties. Want of experience in the culture and management of the crop resulted in a light yield—about one third of a bale, or one hundred and thirty three and a third pounds per acre. It will be observed by the reader that this yield equals the average production per acre of the Southern States.

Of the crop of eighteen hundred and sixty-six we have the partial details of a single experiment. Two Missourians, wholly ignorant of specific methods of culture, planted sixty acres. They worked the crop but one time, and with the hoe. The field was not irrigated. During Summer one half of the weed was destroyed by grasshoppers. The remaining thirty acres yielded six thousand pounds of ginned cotton, or an average of two hundred pounds per acre, equal to nearly half a bale of the Liverpool standard. The acreage devoted to cotton in eighteen hundred and sixty-six was about the same as the previous year—four hundred. Since then we have no further report of cotton from the State authorities.

We are gratified in being able to add the following satisfactory and specific details, furnished us by Colonel J. M. Strong, of Snelling, Merced County. In the year eighteen hundred and sixty-five Colonel Strong procured a sufficiency of native seed to plant two acres. Though a native of the South, he had emigrated to California in eighteen hundred and forty-nine, when he was only eighteen years old. He had some general knowledge of the details of culture and management, as also of the prevalent theories of eighteen hundred and forty-nine. Among these recollections, which he sought to revive for practical purposes, was the decided preference then given to sandy soils. He therefore selected the lightest sandy soil he could find on a farm of four hundred acres, prepared it thoroughly, and planted it in April. He worked the crop himself, plowing it once and carefully following it with the hoe. The plants were thinned to "a stand" by hand. The seed was inferior, and as a consequence the stand was irregular. It was not irrigated. The entire crop was developed and gathered before frost. The bolls were small, the cotton clinging to the bolls when open, rendering picking difficult. This was due to the variety planted. The aggregate yield was thirty-two hundred pounds of seed cotton, or sixteen hundred pounds per acre, equivalent to five hundred pounds of lint or ginned cotton per acre. This crop was grown on the farm of Albert Ingoldsbie, Esq., near Hopeton, Merced County. A sample of it was forwarded to Memphis, Tennessee, for classification by the Board of Brokers. The following is the classification:

MEMPHIS, July, 1870.

J. M. STRONG, ESQ.:

DEAR SIR: Your favor containing sample of "California-raised cotton" received. We have submitted it to the brokers, and they say: In quality it is about equal to our Tennessee and North Mississippi Uplands—the staple a little finer and softer. It has not the body or length of staple of the Lower Mississippi or River Bottom cotton. The sample is "Full Middlings."

Yours truly, etc.,

BROOKS, NEELY & CO.
Cotton Commission Merchants.

REGION ADAPTED TO COTTON GROWING.

It will be perceived that the vast region shown to be adapted to cotton culture by this experiment must be added to that specified in the report of the Transactions of the State Agricultural Society. The first crop ever grown in the State, the *Alta* informs us, "was produced as far north as Shasta," and "is equal," says the writer, "to anything we have ever seen in Georgia or Alabama." This would embrace nearly the whole State. But confining ourselves to the region indicated by actual tests as admirably adapted to cotton production, and we have the following area between the Coast Range and the Sierra Nevada Mountains:

COUNTIES.	Acres available for Cotton.
San Joaquin	896,000
Stanislaus	798,720
Merced	1,075,200
Fresno	5,200,000
Tulare	8,300,000
Kern	750,000
Los Angeles	1,500,000
San Bernardino	2,000,000
Total	20,519,920

The region here indicated exhibits a larger area adapted to cotton culture than is annually devoted to that purpose in East India—the chief source of the world's supply, except the United States. Beginning at latitude thirty-eight degrees, where cotton may be produced equal to the best "Uplands" of the Southern States, we will have, as we descend the scale, a lengthening staple under the influence of climatic change, until in Tulare [Kern County lies south of, and was formerly included in, Tulare County.—ED.], Los Angeles, San Bernardino, and San Diego we would have the "body and length of the lower Mississippi or river bottom cottons." Passing by the densely populated counties contiguous to San Francisco as unprofitable fields for the introduction of cotton culture, because of the greater profit afforded by food crops, to come to the counties west of the Coast Range. Monterey we would pronounce better adapted to grain, because of the cold winds of Summer. San Luis Obispo has five hundred thousand acres available for production; Santa Barbara, seven hundred and fifty thousand acres; San Diego, two million acres—making a total of three million two hundred and fifty thousand acres adapted to the production of the Puler, Moina, and Sea Island varieties. An aggregate of twenty-three million seven hundred and sixty-nine thousand nine hundred and twenty acres, capable, under proper treatment, of producing eleven million eight hundred and eighty-four thousand eight hundred and sixty bales of cotton, of four hundred and fifty pounds each, worth, at present depressed values, seven hundred and seventy-five million four hundred and ninety-three thousand six hundred and forty dollars in the market where it is grown. The area of California is one hundred and fifty-eight thousand nine hundred and ninety-three square miles, or one hundred and one million seven hundred and fifty-five thousand five hundred and twenty acres. If the total acreage above specified were devoted to cotton culture, it would embrace one fifth only of her entire territory.

Whether it be advisable to devote this small proportion of the territory of the State to the production of this staple may be deducted from the facts to be hereafter presented.

QUALITY OF CALIFORNIA COTTON.

The average weight of a bale of cotton, according to the standard established by the Liverpool Cotton Brokers' Association, for American cotton, is four hundred and forty-three pounds. It will thus be seen that with unskillful management, and almost without cultivation, cotton has been produced in different portions of California yielding one third, one half, and one and one seventh bales per acre, respectively, of a quality—in one instance, at least—equal to the standard grade of the Southern States. For general comprehension we explain: Of the medium long-staple cotton produced in the Southern States there are two standard grades, denominated in Liverpool "Uplands" and "New Orleans." The standard grade of the former, for purposes of classification, is "Middling Uplands," and the value of all cotton grown upon the uplands is determined by its approximation to this standard. To the latter is referred the growth of the extreme southern latitudes and river bottom cottons, for like purpose. In the United States there is a single standard grade, "Middling Uplands," the value of all cottons being determined by its variation from this standard. By reference to the classification of the sample submitted by Colonel Strong to the Memphis Board of Brokers, it will be seen that the entire crop grown upon the Merced River met the demand of this standard grade, classing "Full Middlings." When we take into consideration the fact that not more than one twelfth of the crop produced in the United States reaches this standard, we can form some conception of the vast superiority of a climate which admits of the production of entire crops of the highest grade. In further illustration, we here give the quotations of cotton in the Memphis market on the fourth of October, eighteen hundred and seventy: Ordinary, nine and eleven cents; Good Ordinary, twelve and thirteen cents; Low Middlings, thirteen and a half and thirteen and three quarter cents; Middlings, fourteen and fourteen and one eighth cents; Strict Middlings, fourteen and a half cents; Full Middlings, fourteen and a half cents.

The following statement will exhibit the classification and present market value of a crop of twelve bales of cotton produced in the "cotton belt." We give this as an average classification for a number of years. The fluctuations of the seasons produce changes in grades.

No. Bales.	Grade.	Weight.	Price per pound.	Total.
4	Ordinary	1,772	10 cts.	$177 20
4	Good ordinary	1,772	12½	221 50
2	Low middling	886	13½	119 61
1	Middling	443	14⅓	62 57
1	Full middling	443	14½	64 23
	Total value	....	....	$645 11

A California crop of twelve bales, full middlings, five thousand three hundred and sixteen pounds, at fourteen and one half cents, comes to seven hundred and seventy dollars and eighty-two cents.

Supposing the cost of production equal, the advantage in the California crop from this cause alone, would be one hundred and twenty-five dollars and seventy-one cents, or ten dollars and forty-seven cents per bale—a sum amply sufficient to pay for the labor employed to produce it.

ADVANTAGES OF OUR CLIMATE.

The advantage above illustrated is derived from climatic superiority. We point out the peculiarities to which it is due: Uniformity of seasons enables the planter to determine the precise limit within which his crop must be harvested. The absence of rainfall, during the harvest season, relieves the crop from "stain," which lowers the grade, and consequently depreciates the price. The same is true of early frosts. The report of the State Agricultural Society informs us that frost is rarely experienced before the first of December. The harvest season, beginning the latter part of August, ought to be concluded by the first of December. But, above every other consideration, is the healthfulness peculiar to the climate. The laborer and employé may calculate the number of days they can devote to the production and harvesting of the crop.

Contrast this statement with the following extracts from the crop reports of a leading journal published in the Mississippi Valley in eighteen hundred and sixty-nine: "April—Excessive rains have retarded planting." "May tenth—The stand is generally good, but the cool, cloudy weather of the past week has brought the lice. Unless we can have clear, warm weather, they will damage the young crop seriously." "May twentieth—The lice are destroying the stands of cotton in every ocality we hear from. For the past two days the weather has been

unsettled, and the crops are getting grassy. There is a general demand for extra hands." "June first—Many reports come to us of the damaging effects of lice and rain upon the growing crops. The grass is overrunning the fields everywhere. The worthless negroes are abandoning their crops to hunt and fish, and destruction seems imminent." "June fifteenth—Our farmers are getting clear of the grass, and the dry, hot weather of the past two weeks has driven away the lice. We have complaints of the want of rain in some localities." "July first—The excessive drought of the past three weeks is doing great damage to the growing crop. If this weather continues a week longer, the Bureau of Agriculture may reduce its estimate half a million bales. One good result has attended it; the crops are reported clean." "July fifteenth—We have had abundant rains during the past week. The crop prospect is much improved." "August first—The late rains started the grass and weeds afresh. The cotton is reported as running too much to weed. Worms have made their appearance in the south. A return of clear, hot weather will prevent any serious damage from this source." "September first—We have had fair weather for picking. If it continues as favorable throughout the season we may expect a heavy yield." "October fifteenth—The rains are retarding the work of gathering. The planters will avail themselves of this opportunity to send forward the crop already gathered for the relief of the merchants. We had a killing frost on the fourteenth, which will cut off all the young crop," etc. From these and other causes the gathering is generally protracted until February, often to the first of March. The average rainfall during the Autumn and Winter, in the Mississippi Valley, is about twenty-five inches, fairly distributed throughout both seasons. In California it does not exceed fourteen, principally confined to the latter.

WORK NECESSARY TO PRODUCE COTTON.

In estimating climatic contrasts, the healthfulness of California has been referred to. In the Mississippi Valley a poisonous malaria impregnates the atmosphere, generating bilious diseases, which convert the strong, vigorous, active man of one day into a weak, puny invalid the next. Throughout the entire year the system is a prey to climatic diseases. We have known thirty out of a hundred laboring men to die on one plantation in a single year.

In enumerating the several attempts to produce cotton in California, we mention that of two Missourians in Tulare County, derived from the report of the State Agricultural Society. It will be remembered that the yield was two hundred pounds of lint cotton per acre. It was worked only once with the hoe. That of Colonel Strong, of Merced, resulted in a yield of five hundred pounds of (Full Middlings) lint cotton per acre. It was worked twice—once with a plow; once with a hoe. To these statements I am able to add the result of another test, made by Colonel Strong in Merced County the present year. That gentleman passed the years eighteen hundred and sixty-eight and eighteen hundred and sixty-nine in Arkansas, eighteen miles from Memphis, Tennessee, as manager of Holly Grove Plantation, owned by Colonel William Dickson, of Dickson, Alabama. His health was seriously impaired by the climatic diseases before referred to; and in eighteen hundred and seventy he returned to his home in Merced County. Fully convinced that the Merced Valley was better adapted to the profitable cultivation of cotton than any portion of the South, he carried out some select varieties of seed to make a final test. He did not get his crop planted until the twentieth of June. He has written us of it from time to time, minutely describing its progress. His last letter in relation to it bears date sixteenth September. He says: "The results of my experiment are simply marvellous. My fear is that the stalks will be crushed under the weight of their fruit. It was worked once, and will yield at the rate of one and a half bales per acre. It was irrigated; but that was injurious rather than beneficial to it." Colonel Strong expresses the opinion that the Merced Valley will furnish an annual yield of five hundred pounds of lint cotton per acre.

Let us contrast this with the amount of labor expended in the production of a crop in the Southern States, and the return therefor. The labor involved in preparing to plant is about equal. So, also, of the labor of planting and reducing the plants to "a stand." From all the information we can gather this has ended the work of culture in California. In the Southern States it is the beginning. Grass and weeds spring up after every shower, and must be exterminated, or the crop is lost. Cotton must be worked constantly, until the branches so interlock within the spaces between the rows, that it would sustain greater injury from the breaking of the branches than from the growth of grass and weeds. It generally requires to be plowed four times, and hoed as often. The average yield of our best Mississippi Valley lands is two hundred and twenty-five pounds per acre, or half a bale—the average yield throughout the South, a bale to three and a half acres.

The following table, showing the estimated average product per acre, and the average product per "hand," or laborer, is taken from the report of the Bureau of Agriculture for eighteen hundred and sixty-seven. The writer, while claiming to compile from local returns, acknowledges its palpable inaccuracy:

AVERAGE PRODUCT OF COTTON.

STATES.	Product Per Acre. Pounds.	Product Per Hand. Pounds.
North Carolina	160	1,460
South Carolina	145	1,400
Georgia	170	1,550
Florida	165	1,525
Alabama	175	1,620
Mississippi	195	1,825
Louisiana	250	2,200
Texas	225	2,130
Arkansas	240	8,175
Tennessee	165	6,640
Average	190	1,850

It must be borne in mind that the foregoing estimate is based upon returns made prior to the emancipation of slaves. To estimate the

importance of this caution, the statement is made that previous to his emancipation the slave hand cultivated ten acres in cotton and five in corn. The same hand now cultivates an average of seven and one half acres. Thus, while one man, with the improved implements of the present day, can cultivate in California—giving it one working—forty acres in cotton, equal to twenty bales per hand of five hundred pounds each, at fourteen and one half cents per pound (present value), one thousand five hundred and fifty dollars, one hand in the Mississippi River bottom will cultivate seven and one half acres, equal to three and one fourth bales, of four hundred and fifty pounds each, at nine to fourteen and one half cents, one hundred and seventy-six dollars and six cents—a difference in favor of the California producer of one thousand three hundred and seventy-three dollars and ninety-four cents.

FOOD CROPS WITH COTTON.

The cotton region of California is unsurpassed by any portion of the world in the production of grain. The average production of good cotton land would be at least thirty bushels per acre of barley, oats, rye, or wheat. In considering the relative cost of production, it is important to keep this in view. Barley, rye, and wheat cannot be grown on the wet soils of the Mississippi bottom. The fluctuating yield of the oat virtually excludes it from productions for animal food. The efforts of the planter in this most fertile region of the South is thus confined to the growth of Indian corn as a food crop for both man and beast. The average yield of Indian corn in the Mississippi River bottom is about thirty bushels per acre. Comparative analysis demonstrates that the difference in favor of Indian corn over rye and barley, for fattening purposes, is inconsiderable, while wheat is superior to it. Basing our estimate upon the equal value of wheat, rye, and barley, for this purpose, let us compare the cost of production. Ten hands employed in cotton culture in the Mississippi River bottom, cultivate seventy-five acres under the present system. But give them the benefit of an excessive estimate, and say one hundred acres. The proportion of corn to cotton is two acres in ten. Thus ten hands will cultivate of corn twenty acres, averaging thirty bushels per acre, equal to six hundred bushels. For the cultivation of one hundred acres, five mules are necessary—five mules will consume five hundred bushels of corn; ten men will consume one hundred and twenty-five bushels corn; total, six hundred and twenty five—leaving a deficit of twenty-five bushels of grain to be purchased out of the proceeds of the cotton crop. As there is no surplus of grain there can be no meat fed. Hence another draft upon the cotton crop is necessary.

CONTRASTS WITH OTHER STATES.

Contrast the production of ten hands in the cotton region of California. For reasons stated, ten hands will bestow the same culture upon two hundred acres that is now expended by the same number upon one hundred in the Mississippi bottom. Thorough cultivation of land planted in cotton is the very best preparation that can be given to it for receiving grain. A crop of wheat, rye, or barley can always be sown on cotton land with the last plowing. Thus the same "hands" would put in two hundred acres of wheat, barley, or rye. As barley is generally grown for animal food, we will suppose one tenth of the field devoted to wheat and the remainder to barley. The yield, without further labor, will be:

	Barley.	Wheat.
Twenty acres at thirty bushels per acre	....	600
One hundred and eighty acres at thirty-six bushels per acre	5,400	....
Ten horses or mules will consume	1,000	....
Ten men will consume	....	200
Surplus of each to feed to meat	4,400	400

There is a difference of six months in the realization from the grain crop in favor of the Mississippi River planters. The system would necessitate a farm of four hundred acres for the employment of ten hands. The grain crop would prevent cotton planting on the same land the second year. To add "volunteering" to the system indicated, would necessitate a farm of six hundred acres for ten hands. It is to be remarked that the first two crops of cotton and grain from the same lands are ready for market in eighteen months from the first planting. Add the volunteer crop, and the third year under this system would give the following result as the production of ten hands:

Two hundred acres of grain volunteered; yield, two thousand bushels; value, one thousand dollars.

Two hundred acres of grain, thoroughly prepared, fallowing cotton; yield, six thousand bushels; worth three thousand dollars.

Two hundred acres of cotton; yield, one hundred bales; worth ten thousand dollars.

In the following estimate, twenty cents per pound for midland uplands has been assumed as a basis.

The additional labor of harvesting can be estimated and deducted by any practical farmer. In contrast to this, the third year's production of ten hands, under the Southern system, will be as follows:

Corn—Twenty acres will yield thirty bushels per acre—six hundred bushels; value, at one dollar per bushel, six hundred dollars.

Cotton—Eighty acres will yield one half bale per acre—forty bales, at twenty cents for middling uplands, three thousand two hundred and forty dollars.

CONTRAST OF STATES.

Crops.	South'n States--Miss. Riv. Bottom Lands.	California.	Difference.
First year	$3,840	$10,000	$6,160
Second year	3,840	13,000	9,160
Third year	3,840	14,000	10,160

In three years the California planter has gained twenty-five thousand four hundred and eighty dollars in the value of production with the same force, established a system of rotation, and an annual gross income of fourteen thousand dollars, from six hundred acres of land, cultivated by ten laborers.

OUR FUTURE SECURE.

This ascendancy must be maintained for many years, for two potent reasons:

First—For lack of intelligent producers to make good their shortcomings in profits occasioned by high rates of wages, by a corresponding increase in the quantity produced per hand. It is needless to detail the special means by which this must be accomplished. That a complete revolution in the systems of labor and culture must be effected is obvious. It is equally clear, that the source of this revolution is the use of improved implements for the cultivation of the soil. Machinery must supply the place of human muscle, on which the South now relies. For the use of machinery, an intelligent laboring population is requisite. Her negro population, which comprises two thirds of her producers, is destitute of the necessary intelligence. She must, therefore, supply this want before the change can be effected. A brief statement will suffice to demonstrate that she offers no inducements to this class of population, comparable to those held out to them by other sections of the country. Prior to the war, her fertile lands were monopolized by the slave-holding population. The wealth of her people consisted chiefly of land and slaves.

Southern lands may be divided, for the purpose of distinction, into two classes: uplands and river bottoms. The former had been exhausted by continuous cropping in corn and cotton. As the results of the war left the owners destitute of any other possessions, they are unable to apply capital to their renovation. Constituting their sole possession, they are indisposed to sell them in small quantities to emigrants of the character above specified, who would purchase and improve them if offered at low prices, but who are indisposed to become the competitors of the ignorant and degraded laboring population of the country for an unprofitable tenure. This class of land owners are thus compelled to resort to the negro and the little more intelligent native white people. A single statement will convey a more accurate idea of the condition of this people than volumes of description: The same system of culture is resorted to now that was prevalent thirty years ago.

The character of the river bottom lands has been freely discussed. They are cultivated chiefly by negroes—their superior fertility attracting this class of laborers to them from all parts of the South. We may add that these swamps are, in many places, sixty miles wide. They are covered with a dense growth of heavy timber. They are subject to annual inundation to a depth of from one to twenty feet. Thus, in the flood season, the country is a vast "inland sea," studded with island spots, which are the source of production. While the "overflows" cover the land, myriads of buffalo gnats prey upon stock to its frequent destruction, and mosquitoes vex the laborer from April until October. Few schools, no churches, a half-barbarous society, a preponderating negro population, whose votes decide all questions of local or national significance—these are the attractions offered by the most fertile region of the South to the emigrant.

Second—For lack of the capital requisite to import that class of laborers who are willing to accept such low wages as will enable the planter to derive a profit from their labor, notwithstanding the small amount produced per hand, or the depression in price consequent upon increased production. This class of laborers is supposed to be represented by the Chinaman. The expense now attending his importation is beyond the means of the Southern planter, admitting that he represents the desideratum. This closes the question, unless "John" is willing to come to us at his own expense—a result not likely to be realized.

The South is thus remanded to the laboring population within her limits. Her agricultural systems will keep pace with the development of intelligence in her laboring population. An increase in the quantity of cotton produced will result from the reclamation of the overflowed lands of the Mississippi River, and its tributaries, by a permanent levee system. This increase in quantity will be attended by a decrease in the cost of production in the ratio of fifteen cents to twelve and a half cents per pound. Fortunately for the older States, which are thus depleted of their agricultural population, nature has bestowed upon them compensating advantages in unbounded mineral resources. The necessities to which general expansion gives birth, will force the development of these resources; and the lands thus abandoned by the concentration of cotton culture for profit in the rich valleys of the Mississippi, will be devoted to the production of food for the supply of an increasing mining and manufacturing people. The dream of the South, however—of the reproduction of vast crops for export, which will enable her to monopolize the production of raw cotton, and thus control the markets of the world—is an idle dream.

CALIFORNIA AND THE SOUTH.

In an able paper, read before the Commercial Convention, at Memphis, May, eighteen hundred and sixty, by Governor Alcorn, of Mississippi, the realization of this dream is said to lie behind a perfect system of levees. Admitting, as we have done, that it is to be realized to the extent of an increased production, attended with some economical advantages, we yet hold, that to the extent claimed, it is an impossibility. To convince ourselves of the correctness of this conclusion, we need only contrast the condition of the laboring population of the South, as slaves and freemen, with reference to *movement*.

The despotic control which the planter exercised over his slave, admitted of the rapid concentration of a trained laboring population in those regions, promising the largest returns for the labor expended in their culture. The influence upon production of this power over the movement of laboring populations, will be more fully understood by a comparison of the census returns of eighteen hundred and fifty and eighteen hundred and sixty from Alabama and Mississippi, the two most prominent cotton-growing States:

Year.	States.	Population, Slave.	Bales of Ginned Cotton.	Per cent. Area Cotton.	Per cent. Area Grain.
1850	Alabama..........	342,844	564,429	40	45
1860	Alabama..........	435,080	997,978	47	40
1850	Mississippi	309,878	484,292	36	37
1860	Mississippi	436,631	1,202,507	53	38

It will be seen from the foregoing statement, that the increase of production to such an extent as to astonish the world, was due to the transfer of trained laborers from the exhausted uplands of the older States, and its rapid concentration upon the fertile alluviums of the Mississippi River and the rich prairies of Alabama. Under like conditions the anticipations of Governor Alcorn would be realized, for this transfer of labor was a transfer of capital also; it carried with it the basis of credit upon which all the means necessary for the development of the lands could be readily obtained. But these conditions no longer exist. The laws of migration controlling a free people are the reverse of those governing the movement of slaves. Left to the government of natural laws, movement is gradual, and carries with it no vast capital to give extraordinary stimulus to production. True, its direction, under certain conditions, may be controlled by capital. But in the case under consideration we have shown that the capital does not exist. Hence, granting the perfection of the levee system, the sources of increased production will be gradually developed. And we hazard the prediction that the effect of such increase as may spring from these sources will be more than counterbalanced by the increasing demand for food production to meet the wants of a rapidly growing population. Already it has been demonstrated in the disastrous results of eighteen hundred and sixty-seven—eighteen hundred and seventy, that neglect of food crops renders the conditon of the cotton planter one of periodic ruin. If he learns anything from the past, the crop of eighteen hundred and seventy-one will be the lightest since the close of the war. And here we may pause to claim that we have demonstrated the superior advantages of California over any effort of American competitors.

PRODUCTION OF OTHER NATIONS.

We close this article with a brief consideration of the production of other nations. In the elaborate review of the productions of the world by Governor Alcorn—before referred to—thirty-five countries are enumerated as represented in the Cotton Conference held in London, in eighteen hundred and sixty-two, under the auspices of the Manchester

Cotton Supply Association. An array of British opinion is presented upon the question of future supply, the substance of which is:

First—That the theory of an exclusive fiber climate, heretofore held by American producers, is demolished by the hard logic of facts.

Second—That the question of an unlimited supply of cotton to meet the demands of consumption, is a question of price.

Third—That this unlimited supply will be produced at six pence per pound in the home market.

That America cannot compete upon this basis was demonstrated by the disastrous results of eighteen hundred and sixty-seven. That this is equally true of all other countries is illustrated by the fact that their production has steadily declined since the return of the American crop to the markets of the world. A comparison of the commercial statistics will disclose the extent of this decrease. East India, out of sixteen million acres annually appropriated to cotton growing, produced the largest yield in eighteen hundred and sixty-six—one million eight hundred and forty thousand six hundred and forty-eight bales—decreasing in eighteen hundred and sixty-seven to one million five hundred and eight thousand nine hundred and three bales, and in eighteen hundred and sixty-eight to one million two hundred and fifty thousand bales. Egypt presents the largest yield in eighteen hundred and sixty-five—four hundred and four thousand four hundred and eleven bales—decreasing in eighteen hundred and sixty-seven to one hundred and ninety-three thousand and thirty-five bales. South America alone exhibits a steady increase. This is especially true of Brazil. Of course we are to look for that compensation rendered necessary by the deficiencies which mark production in densely populated countries whenever prices decline below the fabulous standard established by the American war. But then agriculture is in its infancy. The reader is referred for accurate information as to methods of culture, quantity produced, and capacity of the country for production, to the Consular correspondence of the United States. (Letters of Robert Scott, Jr., Consul of the United States at Rio de Janeiro.) Comparing his statements with those contained in this article, he will find that no competition from that source can effect injuriously the future of California. And yet it is there and in Mexico that the world will come in time to look for its raw material. In thirty years, a population reaching a hundred millions will curtail materially the production of cotton in the Atlantic States. All that is produced will be consumed at home; no raw material will leave our shores. In this growth and development California will participate largely. If wisdom characterize her people, side by side production and manufacture will march forward in the process of State development. And when to her capacity to produce shall be added the capacity to manufacture ten million bales of cotton, the prediction with which this article is begun will be realized. The world's King will be at her feet. "Commerce is King."—*Carlyle.*

The *Bulletin*, of December twentieth, eighteen hundred and seventy, contained the following letter of Mr. John L. Strong:

COTTON CULTIVATION IN CALIFORNIA—WILL IT PAY? THE QUESTION SATISFACTORILY ANSWERED.

SNELLING, MERCED COUNTY, December 17th, 1870.

EDITOR BULLETIN: In your issue of the eleventh of November you published the report of an examination of California cotton under the microscope, addressed to Colonel Dickson and myself by Dr. I. E. Nagle, of New Orleans. I did not see the published copy until within two or three days, and consequently could not respond at an earlier moment to the comments upon cotton production in California which my letter of that date evoked.

As I am preparing to test this question of production upon a large scale, after careful examination of different localities, and personal observation of the results of the experiment of Colonel Strong, of Snelling, I may fairly claim that I do not seek to involve others in an experiment which, as a prudent man, I would hesitate to make. On the contrary, by the stimulus of precept and example, I encourage others to become competitors with me for the bounty offered by the State, which, if obtained by me, would materially increase the profits to result from my own planting.

A planter upon the uplands and on the Mississippi River bottoms—the poorest and most fertile regions of the South—I claim to make authoritative statements upon all questions pertaining to the present and prospective conditions of those regions. You will find my views upon this subject elaborately presented in a recent contribution to the *Morning Call.*

After the many and exhaustive statements already published, it seems almost superfluous to add anything more as to the question of remunerative employment to labor. I think we have demonstrated very clearly that cotton can be profitably produced in California at the present depressed prices, and with labor at prevailing rates.

COTTON VS. GRAIN CROPS.

But granting, for the sake of argument, that this remains to be shown, let us see if we cannot convince the *Bulletin*. I take as a basis the labor of one man devoted to the production of grain, and one man devoted to the production of cotton, and compare results. This estimate is not my own. It is made up from a comparison of the views of several of the most intelligent farmers of this vicinity:

WHEAT.

Number of acres	100	
Average yield per acre (bushels)	16	
Average product per hand (bushels)	1,600	
Total yield (bushels)	1,600	
Average value per hundred pounds, on farm	$1 37½	
Total value	....	$1,320
Deduct expenses:		
Rent of land, three dollars per acre	$300 00	
Harvesting one hundred acres, fifty cents per acre	150 00	
Thrashing and putting in sacks, ten cents per bushel	160 00	
Forty-five days labor putting in crop, at one dollar	45 00	
Board of laborer forty-five days at twelve dollars per month	18 00	
Sacks for grain, at six cents per bushel	96 00	
One hundred bushels seed wheat, at thirty-seven and a half cents per hundred pounds	68 33	
Feed of team	135 00	
		$972 33
Net profit per hand	....	$347 67

I claim that, except the experiment of Colonel Strong on the Merced the present year, the capacity of California for cotton production has never been fairly tested. I have helped with my own hands to pick and weigh the product of that crop. Incredible as it may seem, it yielded at the rate of five thousand eight hundred and sixty pounds of seed cotton, or about four Liverpool bales per acre. The above facts are verified by affidavit. This crop was planted after thorough preparation, with good seed, by a man who thoroughly understood the best methods of culture, and also the character of the soil and climate where he planted. We may fairly claim then, that under like conditions five hundred pounds of lint cotton would be an average yield. Basing our estimate upon this amount, we have the following results:

Number of acres	20	
Average yield per acre (pounds)	500	
Average product per hand (bales)	20	
Total yield (bales)	20	
Average value per bale, on farm	$75 00	
Total value	....	$1,500 00
Deduct expenses:		
Rent of land, three dollars per acre (same as wheat)	$60 00	
Labor of preparing, planting and culture	36 00	
Board of laborer, at twelve dollars per month	14 40	
Seed for planting first crop (Petit Gulf), two dollars and fifty cents per bushel	50 00	
Picking entire crop, at one dollar per hundred pounds	320 00	
Ginning and baling, at three dollars per bale	60 00	
Feed of team	18 00	
		$558 40
Net profit per hand on farm	....	$941 60
Deduct profit on wheat, as above	....	347 67
Difference in favor of cotton	....	$593 93

Now, be pleased to observe:

First—That the cotton crop is produced and harvested with white labor, at the same rate of wages as is now paid to that labor on the grain farms.

Second—That it is produced from one fifth the land required by grain for one hand, and returns a profit from that one fifth more than double that of the grain crop, at the present depressed value of the staple.

Third—That it gives employment to the same quantity of labor employed by the grain crop for double the time, or to double the quantity of labor for the same time.

The conclusion follows that the production of cotton is a necessity to California, because it can be produced here cheaper than at any other point on the globe, and manufactured with the same economy; because cheap cotton goods enables her to compete with the East for territorial trade, and with all nations for that of Asia, Central and South America, and the Pacific Islands; because it diversifies her industries, and thereby increases population and wealth; because it contracts the area now cultivated per hand, leads to a more thorough cultivation of the soil, and prevents that system of "land-killing," which results from the production of a single staple crop (witness the condition of the uplands of the South and many grain districts of California). I claim the assent of the *Bulletin.*

Very respectfully, your obedient servant,

JOHN L. STRONG.

On the seventh of January, eighteen hundred and seventy-one, Mr. J. M. Strong wrote to the editor of the Healdsburg *Flag*, of Sonoma County, the following letter, which was published in that paper.

THE COTTON EXPERIMENT.

We have received from Mr. Strong a sample of the cotton raised by him in Merced County. By comparison it appears to be of a much finer texture than the "cotton batting" for sale in the stores. Following is "Mat's" letter inclosing the cotton:

SNELLING, January 7th, 1871.

FRIEND HOWELL:

I send you a sample of cotton I raised here, which has been thorougly tested in the East and pronounced of a very superior quality. I produced at the rate of two and a half bales per acre. I will plant three hundred acres here this year. I consider it no experiment, as this is the third test since eighteen hundred and sixty-four that I have made here. My brother has gone to Los Angeles to plant.

Give my regards to all my old friends. I will come down in March. Come up and make me a visit; I think you would enjoy it.

Yours truly, J. M. STRONG.

In January, eighteen hundred and seventy-one, the letter of a correspondent of the San Francisco *Evening Bulletin*, writing from the San Joaquin Valley, published in the edition of January ninth, contained the following information:

COTTON CULTURE.

About three hundred acres of land on Bear Creek will be planted in cotton this year, upon premises owned by Mr. Buckley, under the superintendence of Mat. Strong. An experiment has been made for three successive years past, which has proved entirely satisfactory. A specimen of the article raised was forwarded to the Board of Brokers at Memphis, Tennessee, and pronounced by it "Full Middlings." It is of long staple, fine fiber, and a specimen lot forwarded to the Oakland Cotton Mill was said by the parties in charge to be the best which they had used, except one lot raised on the American River. Mr. Strong has had large experience on the Mississippi River cotton lands, and is sanguine of success. He estimates the probable yield at least one bale, of five hundred pounds, per acre, which, when harvested, will bring twenty-five cents per pound. Mr. Strong reports that in the South the negroes will not work unless they can get the place on shares; and then the implements used are of the most primitive order, in fact have always been, as planting used to be done almost entirely by proxy, so that when any new and improved implement was sent to the place by the owner, who was far off, perhaps in some large city, it was given to the negroes to use, who, not understanding it, would try it unsuccessfully and cast it aside. He estimated that with the use of gang plows and other imported implements, cotton land may be prepared and the crop harvested for twenty-four dollars per acre here, against thirty-seven dollars and twenty-five cents in the South. A brother of Mr. Strong, who is acting agent for a San Francisco company below Los Angeles, has let a contract for the preparation of the ground and tending the growing crop, as follows:

First plowing, per acre	$2 50
Second plowing, per acre	2 00
Harrowing, per acre	25
Checking (both ways), per acre	50
Cultivating twice, per acre	80
Planting, per acre	1 00
Covering, per acre	25
Two hoeings, per acre	2 00
Total for cultivation, per acre	$9 30
Cost of seed	$1 50
Picking, per 100 pounds	1 00

With one bale per acre as the estimate, this would make the cost twenty-six dollars and eighty cents per acre. The Southern States produce about one bale of cotton to three acres of land. Aside from the amount realized from the sale of cotton, we must take into consideration the price realized from the sale of seed, which makes an excellent article of table oil. The yield of seed is about one thousand pounds to the acre. A good market for the cotton is near at hand, at the Merced Woolen Mills, which are now in active operation. Abundant facilities for oil manufactories—to be run by water-power—are offered almost anywhere in the vicinity, on the Merced River. Chinese labor may be profitably employed in cotton culture. In this connection it may be interesting to state the contract price of the Chinese laborers who went to the Southern States: one lot, imported by General Flournoy (once a member of the Legislature of this State), were paid at the rate of sixteen dollars per month, and food furnished them; passage also paid from San Francisco to place of destination and back; time of service, three years. This same party reported to the Chamber of Commerce at Memphis that the Chinamen picked an average of fifty pounds of cotton per day—an extraordinary showing. The average pick of a negro is one hundred pounds per day.

The people of this section are alive to their interests and will no doubt be successful in raising cotton. With their rich soil, splendid water privileges, wealth, and enterprise, there is no reason why they should not be a prosperous people.

EIGHTEEN HUNDRED AND SEVENTY-ONE.

In the *Overland Monthly* for April, eighteen hundred and seventy-one, will also be found an able article on cotton culture in California, by Colonel J. M. Strong, the points and arguments of which, however, are fully covered by the other letters by him here given.

In November, eighteen hundred and seventy-one, Colonel John W. Strong wrote the following letter, which he caused to be published in the Daily *Morning Call*, of San Francisco, as a general reply to sundry correspondents in the Southern States, who had applied to him for information on this subject:

HOW COTTON HAS PROGRESSED IN CALIFORNIA.

Colonel John W. Strong, who has been experimenting in the cultivation of cotton on a large scale the past season, in the vicinity of Anaheim, has kindly furnished us for publication the following letter, which embodies the results of his experiments in this important industry in our State:

NEAR ANAHEIM, November 16th, 1871.

ROBERT MULDRON, Esq., *Paducah, Kentucky:*

MY DEAR SIR: I have the pleasure to acknowledge your favor of the thirty-first ultimo. In view of the fact that I am daily receiving similar inquiries from all parts of the South, I have concluded to forward this letter to the *Morning Call*, of San Francisco, and to the *Courier Journal*, of Louisville, for publication. Its publication in the above named journals will give a wider publicity to the advantages presented by California as a cotton-producing State, than the time at my disposal will admit of my doing through personal correspondence.

I premise my allusion to these advantages with the statement that cotton culture here is in its infancy. The plantings of the present year are the tests of localities merely. Those of the coming year will have a wider range, and consequently a more important bearing upon the future of the industry destined, in my judgment, to become the leading industry of the State. I have not seen the publication in the *Memphis Appeal*, to which you refer, hence I cannot say whether the statements of the writer are as full as you should desire.

THE BEST LOCALITIES.

I proceed to answer your interrogatories. First, as to the localities adapted to cotton production. I should pronounce any of the valleys east of the Coast Range of mountains, situate between the isothermal lines of sixty and seventy degrees, adapted to the culture of cotton for profit. Their special advantages are to be developed by practical tests hereafter. They depend mainly upon the facilities they possess for cheap and thorough irrigation, and their accessibility to the only market on this coast, San Francisco. It is true that an average yield of three hundred and seventy-five pounds of lint cotton has been produced on the Merced River, in what is known here as a dry year, without irrigation. But with facilities for irrigation the yield would have been doubled. The additional cost of irrigation, compared with the increase of the money value of the crop derived from it, is insignificant. Hence its importance at all times, and especially in exceptional years like the present.

COST OF PRODUCTION.

It costs to produce a pound of cotton here, of the same classification and valuation in the Liverpool market as Orleans Middlings, six cents. But there is a marked difference in the classification of a crop produced here and in the cotton States. The absence of rain fall or killing frosts during the harvesting season, gives to the California planter a crop of uniform grade, and that grade the highest. In the cotton States, as you are aware, a very small proportion of the planter's crop reaches the highest grades.

MARKETS FOR COTTON.

At present there is a demand for all the cotton produced here, at home. The price of Middling Orleans in New York is paid for the crop of this year, the cotton delivered at the mills, but ginned free of expense to the planter. I hope the demand for home consumption will keep pace with production, and I believe it will. The profit derived from the manufacture of cotton here promises to be greater than in any cotton-producing country in the world. Should the planter gin his own cotton, the mills prefer its delivery in wool sacks, they being enabled thus to operate upon an open and unbroken staple, while the planter is saved the expense of baling.

Should production exceed consumption here at any time, the surplus can easily be exported to Liverpool. I have not yet found the same facilities offered by merchants here engaged in the export trade as we can command at our Southern seaports. But cotton is a new crop, as yet unhandled, and not understood. When it shall be offered in any quantity, the merchants will be glad to offer abundant facilities for its exportation to Liverpool. If we could do such injustice to the enterprise of San Francisco merchants as to suppose them indifferent to an industry which promises results of such magnitude to their city and State, the cotton planter will attract hither the cotton commission merchant from the South. I have before me a letter from an old established house of Liverpool and New Orleans, who tell me they are anxious to open for business in San Francisco, whenever the harvest promises to be sufficiently large for a start.

THE COST OF FREIGHT.

Inland freights are relatively cheaper than in the South; and as the railway enterprises now in process of construction approach completion, rates will decrease. Freights to Liverpool are about the same as from New Orleans, the difference always favoring San Francisco.

LABOR.

Labor is abundant. White men can be hired for one dollar per day, with board; Chinamen, in any quantity, at twenty-five dollars per month, they boarding themselves. I regard the latter, after testing it thoroughly, as more efficient, notwithstanding the want of experience, than the negro labor of the South. It is only employed when actually needed, and is, therefore, less expensive. It is controlled with less difficulty, and is universally conceded to be industrious and painstaking.

QUANTITY YIELDED.

With the rain fall of ordinary seasons, three hundred and seventy-five pounds of cotton, lint or ginned, may be regarded as a certain yield from lands of average fertility. That yield is the result of the present year's planting, one of the most unfavorable, in consequence of light rain fall for two successive Winters, ever known in the State. With facilities for irrigation, the planter is independent of rains; and such as have made the true and scientific culture of the land a study, will achieve the grandest results within the cotton planter's experience. With the capital you propose to employ, you can handle a crop of six hundred acres. By exercising due care in the selection of your locality for planting, you can double your money the first year at fifteen cents per pound for Orleans Middling cotton.

OTHER ADVANTAGES OFFERED BY CALIFORNIA.

As you are no doubt aware, California is a large State, and is sparsely populated. To the planter from the cotton States, accustomed to the social advantages that are enjoyed in densely populated localities, the prospect in this regard is not inviting. But should you and the many others who are seeking information of me, conclude to come to California, I invite you to meet me at my home at Dickson, on the Memphis and Charleston Railroad, in January next, and I will cheerfully furnish you with all the facts within my knowledge as to localities, as well as such other general and special information as will be of value to you in connection with this matter. Together we will select a locality for settlement, and thus form, from the date of our residence, a pleasant neighborhood. I shall be provided with maps and descriptions which will have the confirmation of personal inspection, as also the terms of the land owners. In the midst of such a "neighborhood" the church and school house may be erected. The State provides munificently for the education of all children, without cost to the parent, and it is no exaggeration to say there is as much talent employed in the public schools of California as in any State in the Union, in proportion to population; and whatever the zeal of the press, in the heat of political discussion, may have asserted to the contrary, I am convinced that no partisanship characterizes the administration of the system.

Taxation is not burdensome, being eighty-six and one half cents only on every one hundred dollars of valuation.

Good cotton and grain lands can be purchased at from five dollars to twenty dollars per acre. Payments are generally one third cash, balance one, two, and three years, with interest on such as are deferred.

I desire to see good cotton planters and valuable citizens, such as yourself, accumulating in California. If they come, I shall see, at no distant day, rising in the midst of their cotton fields, factories for the consumption of their productions, in which the planter will be interested, reaping thus the greatest possible reward from his labors, and alike contributing to the wealth, prosperity, and power of the State.

I am, dear sir, yours, very truly,

JOHN W. STRONG.

THE MERCED PLANTATION.

About the first of October, eighteen hundred and seventy-one, Major John L. Strong furnished the following facts concerning his cotton crop in Merced County, for eighteen hundred and seventy-one, to a reporter of the San Francisco *Morning Call*, which was published in that paper, as follows. [It will be remembered that eighteen hundred and seventy-one was a remarkably dry year, and that all ordinary crops suffered greatly in consequence]. In answer to a question, Major Strong said:

Major Strong—Planting was begun on the twenty-ninth of April. After I left for Los Angeles, it being apparent that we were to have a dry season, my brother was induced, by the promise of water for irrigation, to change the locality selected by me for planting. This change brought about fifty acres of the crop within the track of a wind-current from the plains, which destroyed the stand on that portion of the field, and necessitated a planting in corn. The current referred to follows a certain well defined track. Dipping over a bluff bordering the river bottom, and sweeping through an opening in the timber, it drifted the sand over the young plants. The cotton came up slowly. The ground was very dry. The promised water for irrigation was not furnished. The Spring was of such variable temperature that the Merced River did not at any time become bank-full, or remain up for any length of time when a rise came. Hence we were dependent upon and planted on the moisture from the rain fall. The months of April and May were unusually cold, and the growth of the cotton was therefore retarded. But in June it grew rapidly. On the the first of July it bloomed, and on the fourteenth of August the first open boll appeared. I never knew a more rapid development.

Reporter—How many acres have you now in cotton on the Merced?

Major Strong—Seventy-five.

Reporter—What will it yield?

Major Strong—The seventy-five acres?—about sixty bales of ginned cotton.

Reporter—Do you regard this a satisfactory yield?

Major Strong—I do. It equals the highest average yield of my Mississippi River plantation for any one year for the past five years. It exceeds the average for five years one quarter of a bale per acre.

Reporter—Was the yield reduced by the dry season?

Major Strong—Yes, at least one half. With the ordinary amount of rain, the ordinary annual rise in the Merced River, or facilities for irrigation, the yield would have been doubled.

Reporter—Has the expense been greater or less than you anticipated?

Major Strong—Neither. It has about equaled my calculation.

Reporter—What does it cost to produce a pound of ginned cotton on the Merced?

Major Strong—About six cents. There are general expenses, incident to the culture and preparation of cotton for market, which bear much heavier upon small than large areas devoted to its production.

Reporter—What labor do you use for picking?

Major Strong—Sixteen Chinamen and one negro.

Reporter—Do the Chinamen answer your expectations as pickers?

Major Strong—Yes. They have been picking something more than two weeks, and the sixteen men have reached an average of eighty-five pounds each. Some of them pick ninety-five pounds per day. The negro picks from one hundred to one hundred and three pounds. In two weeks more the Chinamen will pick one hundred and twenty-five pounds.

Reporter—How much cotton have you picked?

Major Strong—Thirteen bales.

Reporter—Will the prices meet your expectations?

Major Strong—You will remember that in an article in your paper last December I predicted a decreased production in the South. That prediction has been fully sustained—a reduction of a million acres in the planting, and estimated reduction of a million and a quarter of bales in production. I then said that the present was the golden moment for a commencement in California. I was not deceived.

Reporter—Do you anticipate a large planting this year?

Major Strong—No. The foundation of a great industry like this is the slow work of time. Such things do not spring into existence like a mushroom. It is better so. Built up gradually, it will be permanently established. It will then be the growth of experience, and it will result in profit both to the individual and the State.

Reporter—Do you design planting next year?

Major Strong—Yes; to the largest possible extent. I have already leased a ranch on the Merced for two years, and I shall plant as many more as are offered me on favorable terms. I am gathering around me young, energetic, active cotton planters, whom I have known in the South, who will be fully capable of managing large crops under my supervision, and with the result of my experience before them. I hope to be able to control a planting of three thousand acres.

Reporter—Do you still believe there is any large portion of the State adapted to the production of cotton?

Major Strong—Yes; the production of cotton, like the production of anything else, is only limited to those localities where water is abundant, or where irrigation is unnecessary. It will always be most profitably cultivated behind the Coast Range of mountains.

The Merced *Argus* of November twenty-fifth, eighteen hundred and seventy-one, published within a few miles of Major Strong's cotton fields, gives the final result of the experiment, as follows:

THE MERCED COTTON CROP.

Colonel Strong finished picking his crop of cotton on Wednesday last, and informs us that the result of the experiment sums us as follows:

The field of cotton consisted of fifty-one acres, measured, from which he gathered seventy-four thousand four hundred and fifty pounds of seed cotton. Thirty acres of the field originally planted in cotton, upon which he failed to get a stand, was plowed over and replanted with corn, which yielded nine hundred bushels, worth in the market about one dollar and a half per bushel. The cotton and corn crop gathered from the eighty acres will sum up about as follows: Cotton, seventy-four thousand four hundred and fifty pounds, at six cents per pound, four thousand four hundred and sixty-seven dollars; corn, nine hundred bushels, at one dollar and a half per bushel, one thousand three hundred and fifty dollars—making the gross proceeds amount to five thousand eight hundred and seventeen dollars. It seems to us that this ought to convince all of the value of Colonel Strong's experiment, and to induce all who have suitable land to enter into the business of cultivating the staple upon a large scale. The cotton is of excellent quality, being remarkably white and clean, and totally free from stains of any kind. The lint is fine, silky, and is sufficiently lengthy to bring it up to a high grade, ranking, perhaps, as "Good Middling." Colonel Strong is busily engaged in making his arrangements for pitching a crop for the next year upon lands owned by Mrs. Stockard, near Hopeton.

The San Francisco *Evening Bulletin* of August twentieth, eighteen hundred and seventy-two, contained the following editorial article:

COTTON CULTURE IN CALIFORNIA.

The evidence that cotton can be as successfully and profitably grown in California as in any State of the Union continues to accumulate from various quarters, and the most experienced and reliable authorities. Annexed will be found a few extracts from a letter lately received from W. G. Allen, Jr., of Kern County, who has eighty acres of land in cotton there, and who is thoroughly informed on that textile and its culture. The letter is addressed to a gentleman who is a large land owner in the county named. We quote:

"The published reports of the cotton crops in this region have not been in the least exaggerated. I have never seen a more flattering prospect for a large yield. The fields now present a beautiful appearance. They are covered with bolls and blooms. These have appeared in the remarkably short time of two months from the planting, whereas they do not appear in less than three to three and a half months in the most famous cotton regions of the South. This is a fact of great importance. To thoroughly test the adaptability of various soils to the growth of cotton, I have planted five kinds of seeds in different varieties of soil, planting each of the various kinds of seed in the different varieties of soil. The result of these experiments shows conclusively that alkali lands—large bodies of which have heretofore been allowed to lie uncultivated—can now be placed among the most productive in the State. The growth is more vigorous on rich lands, and the crops mature earlier and promise a much larger yield.

"I regard the Valley of Kern as superior to the famous cotton belt of the Mississippi for the growth of cotton. This opinion is based on the greater yield per acre; the larger average per hand; the comparatively small expenditure of labor necessary to keep a field free from weeds; rapidity of growth, and uniform grade, as demonstrated by actual crops in this valley. California is the only country I know of that has ever produced an entire crop that has been classified by experts as of the highest grade, viz: 'New Orleans Middling.'

"I have estimated the cost of production of the present crop, from the time of planting to its delivery for shipment and use, and find that it will not exceed thirteen and one fourth cents per pound for the first year, which, because of clearing, extra culture, etc., is always much higher than in succeeding years."

This estimate (thirteen and one fourth cents per pound) is much higher than Colonel Strong's. It shows, however, that the writer has included every source of expense, and that he did not wish to underestimate the cost. "Fair Middling" cotton was two or three days ago quoted in New York at twenty-one and seven eighths cents per pound, to which, if we add freight here, the total cost to our importers will not be less than twenty-seven and one half to twenty-five cents. An English shipping firm here (Rodgers, Mayer & Co.) offer to pay twenty-two cents per pound for California cotton, of the grade which they lately exhibited in England. The home demand is so large, however, that all that we produce can readily be sold and worked up here, and at high prices.

Thirty thousand pounds were raised in Kern County in eighteen hundred and sixty-six, by way of experiment (which was even then in every respect satisfactory), and sold here at thirty-one cents per pound. All the signs now point to the addition of cotton to the staple crops of the State. Perhaps the most gratifying feature of the whole matter is, that there are large tracts of Government land in Kern County suitable for the growth of cotton, and that the California Cotton Growers' Association, with an enlightened selfishness that is highly commendable, are aiding settlers in every way, and have paid all the expenses of breaking the necessary paths of experiment by which the requisite knowledge of what the land is capable of doing, and of the kind of seed best suited to it, has all been obtained.

[In the above article, as printed in the *Bulletin*, the second sentence read, "Annexed will be found a few extracts from a letter lately received from W. G. Allen, Jr., of Kern County, who has eight acres of land in cotton there," etc. This was an error, probably merely typographical, the fact being that Mr. Allen had eighty (80) acres in cotton this year, and therefore the correction is made as above. As to Mr. Allen's estimate of the cost per pound of his crop, it should be borne in mind that it covers the clearing of a portion of new land and the making of irrigating ditches, an expense not chargeable against any future crop.—ED.]

PLANTING IN LOS ANGELES.

The Los Angeles *News* gave the following statement of the result of Major Strong's experiment in eighteen hundred and seventy-one, in that county, which apparently indicates that the culture of cotton is safer in the warm interior valleys than near to the coast:

"Various experiments in cotton raising, on a small scale, have from time to time been made in Los Angeles, with varying success. This season Major Strong, believing that the culture of the staple could be made profitable, planted some two hundred acres. The ground selected was on one of the ranches owned by the Los Angeles and San Bernardino Land Association, a few miles from Anaheim. The plants grew finely, and gave promise of yielding a fine crop; but before the bolls had come to maturity untimely frosts dashed the hopes of the cultivator, and the crop proved a failure. Major Strong partially compensated himself by replanting the land in corn, of which he raised one of the finest crops in the county. We incline to the opinion that our nights are too cool to admit of cotton raising being pursued with profit. Others, however, think differently; and experiments on a large scale will be made next season. William R. Olden, who owns five or six hundred acres of magnificent land, located some three miles this side of Anaheim, will plant one hundred acres. We sincerely hope that his anticipations will be realized."

[We have not yet received any information as to Mr. Olden's crop, if he carried out his intention of raising one this year.—ED.]

The Visalia *Delta* thus mentioned an experiment in that locality:

COTTON GROWING IN TULARE.

Vincent, of Porterville, tells us that he planted a few cotton seeds in his garden last Spring. It matured without any other care than irrigation. The bolls were full and white. We are promised a sample, when we will notice the subject further. We hear that several parties have raised small quantities for the stuffing of beds and quilts and other domestic purposes, for which it is admirably adapted. There is no trouble to raise cotton on our river bottoms, and there is no want of a market at prices which will bear transportation.

The Woodland *Democrat*, of Yolo County, mentions an experiment in that county as follows:

COTTON GROWING IN YOLO.

On the unreclaimed tule lands above the town of Knight's Landing, Charles F. Reed, President of the State Agricultural Society, last Spring planted about two acres of cotton as an experiment. We learn the seed was of the Sea Island variety and imported. It was supposed to be somewhat imperfect, and it did not germinate as easily and quickly as was expected. However, a tolerably good stand was produced, and about half of the two acres look promising. It is about three feet high. It commenced to bloom about the tenth of this month, and the bolls are forming on the early bloom. The growth of the stalk is very rapid, equal at present to two inches a day, and new blossoms are constantly making their appearance. Persons familiar with cotton growing pronounce the prospect good and believe the soil to be admirably adapted to the growth of the staple. This has not been a fair test of the adaptability of the land for this purpose, however, as the seed was not planted until the last week in May, and consequently will not have time to mature the last bloom. Had it been planted a month earlier, the early bloom would now be ripe and ready to garner, and picking would continue until frost came. As it is, there will be a good yield of both cotton and seed. The latter will be fresh for use next year, and we confidently believe the growing of cotton will prove a success on this class of lands, which have heretofore produced nothing and were considered valueless.

[Concerning this crop we were also informed by William Blanding, Esq., that in October the plants were five feet six inches high and filled with bolls which were not then matured, but promised a heavy yield. Three kinds of seed were planted, viz: Sea Island or long-staple, short-staple, and Egyptian. No care was taken with the crop, and he believed that it was not picked. His impression was that the bolls would not mature before the rainy season set in, or the plant killed by frost.—ED.]

NEWSPAPER OPINIONS.

The San Francisco *Rural Press*, the leading agricultural paper in California, not long since referred to this subject as follows:

The time has fully arrived for some of our California capitalists to embark in the cotton manufacturing business. Before machinery can be procured to put a mill in operation, the home supply of the raw material will be amply abundant to furnish it with all of that article it may require. Mr. Rector, who established the first cotton factory on this coast, was compelled to abandon the enterprise of manufacturing for causes that have no existence at the present time. He expresses the opinion that the coarser kinds of cotton fabrics can be woven with profit, when there is a steady and convenient supply of the fiber. That this supply from the start can be constantly augmented if inducements for cotton culture are offered, is a question no longer problematical. The Strong Brothers have already produced at least two extensive fields of cotton, and its growth has been attended with success in San Bernardino and Yolo Counties. We have now an encouraging voice also from Sutter county. The *Banner*, published at Yuba City, says:

"William Mawson, on Butte Slough, in this county, has cultivated the cotton plant, with great success, for the past two seasons. There is no question about the success of raising cotton in this valley. We look forward to the time when the Sacramento River will be planted on either side in extensive cotton fields. With our advantages of climate, California can compete with the cotton States of the South, and allow a higher compensation for labor. Now, that we have triumphed in wool-growing and in the manufacture of woolen fabrics, let us also engage in the cotton business, and hasten the day of cotton mills."

COTTON NEAR SACRAMENTO.

We have been shown stalks of cotton, grown by Mr. Neely on the red clay land, about six miles from Sacramento, which were well studded with well developed and open bolls of cotton, apparently of good, long, and fine staple. Mr. Neely says he has been a grower of cotton in the Southern States, and he is satisfied from his experience here that with facilities for irrigation, when necessary, cotton can be made a good paying crop, even on the lands and in the locality designated.

The variety which did so well was that of the Teumpu Upland.

Mr. Neely planted some Egyptian seed at the same time, and cultivated it in the same manner; but this kind matured only a few bolls, and these were comparatively small, and the staple short and inferior.

At one time the idea prevailed quite generally that the dry climate of California was unfavorable to the production of cotton, for the reason that the boll would not open well, except in a damp climate, like that in the Southern States, where the nights are as warm as the days. Actual experiments by competent growers are exploding the theory, and establishing the fact that our climate and soil, in many portions of the State, are very favorable to the perfect and profitable production of this important staple.

The San Francisco *Commercial Herald* of January twelfth, eighteen hundred and seventy-two, in its annual review of agriculture in this State, said:

"Experiments recently made in the culture of cotton show conclusively that this will soon become one of the great staples of the Pacific coast. The area of land suitable for the growth of cotton is, however, limited. It requires moisture, heat, and comparative exemption from frost. The alluvial lands bordering on the Sacramento, above Knight's Landing, and the tule regions of the San Joaquin Valley, adjacent to Kern, Buena Vista, and Tulare Lakes, will, in all probability, prove as valuable for cotton raising as the best lands in South Carolina or Georgia. * * * Tobacco, ramie, sorghum, sugar cane, and a great variety of semi-tropical plants will, as experience shows, flourish in our rich alluvial soils and warm valleys."

THE COTTON CROP OF EIGHTEEN HUNDRED AND SEVENTY-TWO.

Thus much having been said concerning the experiments made in cotton culture in California in former years, and the opinions of practical men familiar with the business having been given at length, in order that experienced cotton culturists abroad may examine and criticise them, and form their own conclusions, it only remains to mention the cotton crop of the present season. As the picking season has not yet closed, and the actual final results cannot, therefore, be definitely stated, all that can be given is the condition of the crop at the present time.

CROP ON THE MERCED RIVER.

Early in October, eighteen hundred and seventy-two, the writer left San Francisco for the purpose of seeing the cotton crop of California, to ascertain its extent and actual condition. On the fourth, fifth, and sixth of October, he visited Snellings and Hopeton, small towns in the San Joaquin Valley, on the bottom lands of the Merced River, between ten and fifteen miles east of the San Joaquin Valley branch of the Central and Western Pacific Railroad. Mr. J. W. Strong has this year raised a crop of two hundred acres in cotton. The Buckley Brothers, on a neighboring farm, have two hundred and fifty acres; Mr. C. S. Peck, near by, has seventy-five acres; Mr. Claiborne Dean has twenty-five acres; Mr. J. B. Coconour twelve or fifteen acres; and Mr. Farrell five acres—in all, about five hundred and seventy acres. All these patches of cotton, with the exception of that of Mr. Farrell, were examined carefully. The appearance of the plants was alone sufficient to satisfy any one that they were growing in a soil and climate well adapted to their wants. The stand, except on a few scattered patches, where some accident or neglect had occurred, was very good. The plants were evidently strong, vigorous, and healthy. The number of bolls they bore was evidently large, since limbs from half an inch to an inch in diameter were frequently to be found broken down by the weight of the fruit they bore, while the lower limbs often rested upon the ground from the same cause. Upon the moister land, and where irrigation had been most liberally supplied, as also among the plants that were latest planted, the growth of the plants was still actively proceeding at every stage. Upon the lower limbs or those of the second row, the perfected bolls were rapidly opening, while upon the upper branches of the plants blossoms, squares, and forms were still being produced, and fresh leaves putting out. Of course this growth would continue until checked by the first frosts, and the bolls latest formed would be unable to mature. But the bolls previously formed were already well advanced, and apparently three fourths of all would either mature naturally, by the continuance of the fine, warm, bright, growing weather then enjoyed, or be opened by the frosts, which would be powerless to injure them materially. This crop, however, particularly the portions upon moist land where the growth was largest and the plants most succulent in the early part of the season, had been somewhat injured by a sap-sucking fly, never before observed, that visited that section of the State about the time the first blossoms appeared, and attacked not only the cotton plant but also the oaks and other trees, the weeds, vegetables, and alfalfa, all of which suffered more or less severely. A large part of the first set of blossoms on the cotton were thus lost, and the growth of the plants partially checked; but a new set followed, and a new growth of the branches was made, and it required an experienced eye and careful examination to detect the marks of this visitation. Colonel J. M. Strong estimated that the probable yield of his crop was thus diminished from twenty-five to forty per cent. Nevertheless he considered that the crop of the district would be one half to three quarters of a bale per acre, while portions of the land will greatly exceed this average. A considerable first picking had already been made upon Colonel Strong's land, and a large pile of seed cotton was already in his barn. Picking was then going on upon the land of Mr. Peck, and was about to be commenced upon the other farms. The Buckley Brothers had picked portions of the earliest of their crop, but just then their hands were engaged in harvesting a splendid crop of hops on another part of their farm, which was yielding nearly double what is considered an average crop. They thought their cotton crop this year looked better than that of last year, and promised quite as large a yield. Only portions of the cotton crop on the Merced had been irrigated, and several of the cultivators expressed the determination to dispense next year with irrigation altogether as unnecessary, provided the season at all resembled that of this year. The other cultivators had not planted cotton before, but had been encouraged to do so by the success of their neighbors last year.

In conversation with many Southern men met with in the vicinity, some of whom professed and had had much experience in cotton culture in the Southern States, none but favorable opinions were expressed concerning the appearance and probable yield of the crop. Nearly all said they had never seen finer looking cotton, and several that they had never seen its equal. In no single particular did they consider either the plants or the staple inferior to that of the Upland cotton of the South; while all agreed that the culture was less expensive and troublesome, the cotton whiter and cleaner, being free both from dust and stain, and not beaten out of the bolls by rain, and that the yield promised to be larger than they were accustomed to see, except in the most favored spots in the best years in the South. It seemed, however, to be the opinion that as large a quantity of cotton per hand could not be picked in California as has been the case in the South; some remarking that they were unable to pick as much as they had been able to at home, etc. Whether this was owing to the variety of cotton planted, which is principally the Dixon seed, or because the crop was not fully ripe, I was unable to determine, but attributed it partially to both of these causes, and partially to the fact that these experts were now sadly out of practice, most of them having resided in this State for a number of years. The Chinese, who do most of the picking, are naturally slower in their movements than Americans, and do not work under the lash, as used to be the case with the slaves. Indeed, they cannot be either hurried or driven, but are disposed to take their own time. Labor is scarce, and they can do somewhat as they please, dismissal being the only penalty to which they are subject. They work for day's wages, declining thus far to pick by the pound, as they are not yet thoroughly familiar with the business. The wages paid them on the Merced River was one dollar per day, they boarding themselves. At the commencement of the season they average very little more than fifty pounds of seed cotton each per day. As the season advances and the number of open bolls increases, and they become also more accustomed to the business, they improve, and one Chinaman, who had picked cotton the previous season, was pointed out, who picked between eighty and ninety pounds per day, and at the same time made so much cleaner work that his cotton was for that reason kept separate from that collected by the others of the gang.

The cotton on the Merced River was mostly planted between the twentieth of April and the twentieth of May, some much later. On the farm of the Buckley Brothers, planting continued through May and June, and one small patch was planted in the first days of July, the bolls on which will nevertheless mature. On this farm a patch of cotton was pointed out which was planted at the same time and by the side of a patch of corn on the same land. The cotton was large and a healthy green, strong and vigorous, while the corn had died and dried up at a height of between two and three feet. Near by was other corn planted earlier, which measured over fifteen feet in height, many ears being fully ten feet from the ground, with eighteen full rows of large, perfect grains to the ear, and will average sixty bushels to the acre. The cotton throughout these fields ranged from three to six feet in height, the branches interlocking between the rows, which were four feet and four feet and six inches apart, planted in ridges. Picking commenced about the twenty-sixth of September.

The land is alluvial, deposited by the Merced River, which occasionally shifts its channel. All the farms along this bottom have facilities for irrigation, as water can be taken from the river almost anywhere, and distributed by cheaply constructed ditches. It is valued at from twenty to fifty dollars per acre, according to the proportion of bottom land a farm contains. The fact that cotton can be so successfully and profitably grown there, and the construction of the railroad, have within the past year or two considerably enhanced its value. It has been occupied for from fifteen to twenty years, though all of it is not yet completely cleared of the natural growth of timber and brush which it contained. In conversation with the planters, I found that all were well pleased with their cotton, satisfied that it would prove more profitable than grain or other crops raised in the vicinity, and intended enlarging their plantings hereafter. It was estimated that upwards of one thousand acres would be planted in this neighborhood next year.

CROP ON MARIPOSA CREEK.

On Mariposa Creek, in Merced County, a dozen miles or so south of the Merced River, are other plantations, which were visited on the next day. Through the influence of Colonel Strong, one hundred acres were planted in cotton this year, he supplying the seed to the planters. Messrs. Turner & Helm have twenty acres; Mr. H. McRuer, twenty-seven acres; Mr. R. Harris, twenty-seven acres, and Mr. T. J. Wilcox, twenty-six acres. Their farms lie about two miles east of Plainsburg, on Mariposa Creek. The land is subject to annual overflow when heavy and sudden rains cause the creek to rise above its banks. This overflow seldom lasts more than twenty-four hours, but serves to saturate the flat lands from one half to three quarters of a mile on either side. The creek is dry towards the end of Summer. This soil is rather more sandy than that upon the adjoining plains, though portions are rather clayey in their character. The cultivation here did not appear to have been as careful as on the Merced, and the land was generally not so well pulverized. On some portions of the land the stand of cotton was not so good as the generality of that on the Merced, and a portion had been replanted on the eighth and ninth of May, the first seed sown having been planted too deeply. As the land was rather drier, the crop was generally more advanced than that on the Merced, and many of the plants smaller. Picking was just commencing. On the drier portions the plants were small, being about two and two and a half feet in height, and most of the bolls already ripe and open. They would average from fifteen to twenty bolls to the plant. On the moister portions of the land the plants were fully equal to the average upon the Merced, and would probably yield as well.

Land in this vicinity, with slight improvements, sells at a little upwards of twenty dollars per acre along the creek. Wheat land on the plains, not subject to overflow, can be bought at ten dollars per acre. The planters here were also well pleased with this, their first crop, and intended planting more largely next season, and their example will be followed by neighbors. One gentleman estimated that five hundred acres would be planted in cotton on Mariposa Creek next year.

On Kings River, in Fresno County, there are several patches of cotton planted, one of which contains forty acres, and was recently mentioned in the Fresno *Expositor* as being in splendid condition. The same paper also mentioned that "all the cotton farms were doing well," and expected fine crops, but made no statement of their area. These lands are also provided with facilities for irrigation, by canals made for the purpose.

Concerning forty acres of this crop, the latest intelligence is contained in the Fresno *Expositor* of October twenty-third, eighteen hundred and seventy-two, which said:

> "We have frequently mentioned the cotton crop of Mr. C. Davis, situated near Centerville, while in progress of culture. At this time, Mr. Davis is actively engaged in gathering this valuable crop, and further furnishes practical evidence that cotton can be produced in that region. The field presents the appearance of snow-banks, as the gatherers leave the cotton in piles in the field, which presents a rather beautiful sight, especially in the evening."

At Visalia, the writer was unable to obtain sufficiently definite information concerning these plantations to know whether the quantity grown would justify a trip of thirty-five miles and return, expressly to see them, and accordingly did not visit them. On Tule River one or more small patches of cotton were also said to have been planted, but no definite information concerning them could be obtained, and they probably are not important, except as demonstrating the adaptation of the soil in that vicinity to the culture. A small patch of half an acre or so was also planted on Kaweah Creek, not far from Visalia, which was reported to be thriving finely.

CROP IN KERN COUNTY.

On Kern River, near Bakersfield, in Kern County, a crop of about one hundred and forty acres of cotton has been raised this year by the California Cotton Growers' and Manufacturers' Association. A larger area was planted, but owing to the ignorance of the person then in charge of the use of irrigation, a portion was ruined unnecessarily, and one hundred acres was plowed up and replanted in Indian corn. This cotton is raised upon a tract of rich alluvial soil, a portion of Kern Island, the whole of which possesses ample facilities for irrigation by means of a large canal, which takes water from Kern River, the finest and largest stream in the southern portion of the State. In the middle of October, Kern River is a clear, sparkling stream, seventy-five yards in width and two feet in depth, with a current of four miles per hour. The Town of Bakersfield is located a short distance below where the river issues from the mountains. The land between the present and the former channels of Kern River is apparently level, but with a gradual slope towards Kern and Buena Vista Lakes, so that the whole, some eighty thousand acres of rich land, can readily be irrigated by means of the canal, which passes through Bakersfield, and branches of which are led to all parts of the town and to the adjoining farms. The cotton is planted on land immediately adjoining the town. It was not quite so far advanced as that upon the Merced River when first seen, but before the end of a week's visit was in about the same condition. Its daily improvement was very perceptible, the more forward bolls opening freely, and the newer ones increasing rapidly in size and maturity. The thermometer daily marked from eighty-two to eighty-five degrees in the shade, and from one hundred to one hundred and five degrees in the sun, the sky bright and cloudless, so that no finer growing weather could be desired. Frosts were not expected for several weeks, and there was every prospect that as large a percentage of the bolls would be matured as in any of the other plantations visited, and consequently an equal yield was expected. The plants were fully equal in size and general appearance to those of either the Merced River or the Mariposa Creek, and the number of bolls as large. Instances of limbs broken off and plants thrown over by the weight of bolls they had to sustain, were quite common. The first picking had commenced about the end of September, and was resumed about October fifteenth. All the soil upon which cotton was planted here was flooded with water before it was plowed, and nearly all the cotton was irrigated twice, and a portion three times, after planting and before the bolls were formed. One portion of the crop is now in charge of Mr. W. G. Allen, Jr., and another portion under the care of Mr. J. R. Watson, both natives of the Southern States and well acquainted with the modes of culture in use there.

A Mr. Stine, whose farm is distant a couple of miles from Bakersfield, has also a few acres in cotton, which was planted where a young vineyard had been set out, so that the cultivation necessary for the one should also serve for the other. It was in good condition and nearly equal to that planted elsewhere in the vicinity, though it had been neglected in the early part of the season. Picking had commenced there, though not regularly. One peculiarity of this patch was that portions of the land were strongly alkaline in their character, the distinctive red and white markings, or efflorescence, being everywhere visible. It had heretofore been supposed that alkali lands were wholly unsuited to cotton culture; but in this case the cotton plants upon such land appeared equally thrifty, healthy, and productive as those upon land where no signs of alkali were visible. Julius Chester, Esq., the resident manager, states that the Cotton Growers' and Manufacturers' Association will plant two thousand acres in this vicinity next year, and will also supply seed and the free use of their gin to all others who will plant. Several residents of the vicinity have announced their intention to plant patches of cotton as large as they believe they will be able to take care of, on irrigable lands. Here, also, all who have been interested in the culture of cotton, or observed it, express themselves satisfied that the culture is free from risks and difficulties, and more profitable than any grain or other annual crop that can be grown, and that no section of the State offers equal inducements, in point of climate, the breadth of good land adapted to the culture, the unequaled facilities for irrigation, and water-power for manufacturing already existing, while the early completion of the railroad to this point, from which it is now distant forty-five miles, will also place the planters in daily communication with San Francisco and all other portions of the coast in which a market for their product will be sought.

Five or six cotton gins have already been purchased, and will be in use this Fall at the points named, in separating the seed and preparing the crop for market. Colonel Strong has sent for those to the Eastern States for himself and friends, and was to purchase another in San Francisco. These were to be used upon the Merced and Mariposa, and another will be in operation at Bakersfield. The Gullet Gin, of fifty saws, appears to be the favorite. It is said to cost about two hundred and seventy-five dollars in New York, to which freight to this coast must be added. It is, therefore, less expensive than much of the heading, reaping, and thrashing machinery with which every large grain farm is usually supplied, and can be driven by the ordinary horse-power attached to thrashing machines. The cotton can be delivered at the factories in this State in the seed, or, when ginned, in wool sacks, without much pressing, as they would prefer to receive it, or pressed into bales with either of the improved hay presses in use throughout this State. The gins are readily portable, and can be carried from farm to farm as easily as other agricultural machinery, thus saving the hauling of the seed, or can be driven by either steam or water-power, where such facilities exist. The gin at Bakersfield will be driven by water-power, at the flour and planing mill of the Cotton Grower's and Manufacturer's Association.

In some of the Southern coast counties it is believed that a number of small plantings, of an acre or so, have been made this season, but although the writer returned to San Francisco from Bakersfield, via Los Angeles and the coast stage route, through Los Angeles, Santa Barbara, and San Luis Obispo Counties, he was unable to obtain any definite information concerning them, and they are probably unimportant and only small experiments, or cotton planted merely for domestic uses. The immediate vicinity of the coast, along which some of the finest lands lie, and particularly those best provided with the means of irrigation, was every evening, during the night, and for a number of hours in the morning, enveloped in dense, cold fogs, which gradually dispersed during the middle of the day to return again towards evening. The middle of the day was warm, and in sheltered localities, inside the outer coast range, very hot. But it was evident that the presence of these cold, chilly fogs, would seriously interfere with the maturity of cotton, and that cold, cloudy weather of this kind was not such as is required at a time when the plant needs ample heat and sunshine to insure the perfect opening of the largest possible percentage of the bolls that are formed. The conclusion previously arrived at, by Colonel Strong and others familiar with the subject, that the interior valleys of the State, away from the influence of the cold coast winds, are best adapted to the culture of cotton, is obviously correct, and it is there we are to look for the greatest production.

EXTENT OF THE CROP.

From the best information it has been possible to obtain, it therefore appears that the cotton crop of California for the present year is between eight hundred and nine hundred acres, and that the average yield will be about three quarters of a bale per acre, and probably somewhat more. The staple is fully equal to that produced in former years, and can be sold at twenty and twenty-two cents per pound. At this rate the product per acre will be from sixty to eighty dollars, and in some cases much more; while the expense of cultivation will not exceed that of Indian corn, though the picking is more expensive. The profit to the grower at these rates is greater than can be secured from any ordinary grain crop on similar land, or elsewhere. Every cotton grower spoken with, and many of their neighbors, were convinced that such is the case, and for that reason declared their intention of extending their cultivation of cotton. All the cotton raised this season might have been planted at least one month earlier, and thus have had one month more of growing weather at the ripening season. The cotton plant has developed no special enemies, and is subject to no accidents to which other crops are not equally exposed, and as it is not planted until after the character of the season is determined, the risk is less. Its cultivation has many advantages over the culture of other crops, that have been already sufficiently referred to; while the product is better able to bear the expenses of whatever transportation may be necessary to find a market. Cotton is not an exhaustive crop, but will give rise to a useful rotation and a better system of agriculture. With the securing of the crop the home industries connected with it will only commence, since, with our great water-power facilities, cotton may be manufactured here with equal or greater advantages than in the Eastern States; and the Pacific coast will afford a ready market for all the articles that may be manufactured from it for years to come.

THE CROP OF EIGHTEEN HUNDRED AND SEVENTY-TWO—ACTUAL YIELD AND QUALITY—THE FIRST SHIPMENT RECEIVED—PROSPECTS FOR EIGHTEEN HUNDRED AND SEVENTY-THREE.

The Sacramento *Record* of December second, eighteen hundred and seventy-two, said:

"The cultivation of cotton in California is receiving merited attention, and recent experiments have demonstrated that an article can be raised here that will compare favorably with that produced in the Southern States. We have received two specimens, one of which was raised in South Carolina, and the other from the plains near King's River, in Fresno County. These specimens are of the Barbadense species of common American cotton, and upon the closest inspection but a slight difference can be discovered between them. This evidence of the capability of our soil for cotton culture is encouraging to those who have embarked in this branch of industry, and furnishes an incentive to more extended effort. The ground upon which the California sample was grown was badly cultivated, and, owing to the lack of irrigation and imperfect plowing, the result of the crop is not so perfect as it would otherwise have been. The staple is quite as firm as that of the Carolina cotton, only varying from it in a slight difference of color, the California fiber being a shade darker. There is a large quantity of land in Fresno County admirably adapted to the cultivation of cotton, and already a company has been formed under the name of the Coöperative Canal and Agricultural Company, with a view in part to an extensive effort in this direction. They are constructing a canal from King's River to irrigate a large area of country, and will doubtless make a good exhibit in another year. Indeed, in view of the peculiar adaptation of both soil and climate, there is no reason why we should not make as good an exhibit before many years as some of the old cotton-producing States. The November returns of cotton produced in the United States give an average increase of about sixteen per cent over eighteen hundred and seventy-one, with an area in cultivation of twelve to thirteen per cent larger. The total product for the year is estimated at three million four hundred and fifty thousand commercial bales, of four hundred and sixty-five pounds. The report of the statistician of the Department of Agriculture shows the indicated product of fiber per acre returned from each county, making the following averages for each State, viz:

STATE.	Average yield per acre—pounds.
North Carolina	173
South Carolina	182
Georgia	180
Florida	125
Alabama	170
Mississippi	200
Louisiana	215
Texas	220
Arkansas	170
Tennessee	190

"The area in cotton, as calculated from the returns of eighteen hundred and seventy-two, is as follows:

STATE.	Acres.
North Carolina	450,629
South Carolina	570,652
Georgia	1,311,331
Florida	158,099
Alabama	1,387,972
Mississippi	1,537,618
Louisiana	940,218
Texas	914,269
Arkansas	693,512
Tennessee	518,605

"In a number of the States that have heretofore furnished heavy yields, owing to the changeableness of the weather, the crop of eighteen hundred and seventy-two fell far short of that of the year previous. In this respect California has an advantage, because of the equableness of her climate, and it is to be hoped that the results of the efforts now making in Fresno County, where the situation is peculiarly favorable, will meet the anticipations of all interested in the cultivation of our great staple."

The Stockton *Republican* of November thirtieth said:

"It is evident that the time is not far distant when cotton raising and the manufacturing of the raw material into marketable goods will be one of the prominent branches of industry in this State. It has been demonstrated that the southeastern counties are peculiarly adapted to the growth of the finest qualities of the staple, and it only needs the manufactories to supply demand to give an impetus to the business, which promises to become of vast importance. Not only are the southern counties of California peculiarly adapted for cotton raising, but the fertile valleys and plains of Arizona are also wonderfully prolific in the production of the article. For years the Pimos, Mohave, and Maricopa Indians in Arizona, located in the rich valleys of the Gila and Colorado, have produced an article of cotton which experts declare to be equal to the best Sea Island raised on the Carolina coast. These Indians have not only raised the cotton, but with their native ingenuity they have spun and wove the same into fabrics suitable for their demands and uses."

The Fresno *Expositor* of November twentieth said:

"Cotton growing threatens to become a mania in our county, and, in fact, elsewhere in the State. We have conversed with quite a number of parties during the past few weeks who contemplate planting their lands with the 'staple' next season. This is in a great measure due to the successful culmination of the cotton-growing enterprises which have been undertaken in this county and in other portions of the valley. Strange to relate, what has hitherto (previous to eighteen hundred and seventy-two) been considered the arid plains is the land being selected for cotton plantations by many. There are two reasons which conspire to bring about this state of facts: the land is susceptible of irrigation from the King's River Irrigation Canal; second, it is more convenient to the railroad. That these cotton-growing enterprises will be successful hardly admits of a doubt; and that it is a more lucrative crop than wheat no one pretends to question. A successful growing of cotton on an extended scale will place Fresno, in point of wealth and prosperity, far in advance of any of the thrifty grain-growing counties."

The Snelling *Argus* of October twenty-sixth said:

"At the late Fair at Modesto, in Stanislaus County, there were but two specimens of cotton on exhibition, both from Merced, and to Mr. Peck was awarded the premium, over the Buckley Bros., for the best specimen of cotton."

The San Francisco *Rural Press*, shortly after the picking commenced, said:

"The success of earnest men, during the last and present year, would seem to indicate that we have a large area in Stanislaus, Merced, Fresno, Tulare, and Kern Counties well adapted to cotton growing. We are every week making mention of superior samples sent us from two or more of the counties named, and still they come.

"The Buckley Bros., in Merced County, probably have the largest field of cotton in the State—two hundred and fifty acres. We do not speak of it as a large field of cotton, where cotton has long been a staple product; but here, where the business is but an experiment, and has always been considered an uncertain one, it may be mentioned as a large field.

"One of the brothers called a few days since, and we learn from him that they are daily expecting from the East a gin of sixty saws, capable of ginning eight bales in twenty-four hours, of from four hundred to four hundred and fifty pounds to the bale. The gin, with a Duane press (the latter made in San Francisco), will be set up, with one of Hoadley's thirty-horse-power steam engines, at Hopeton, Merced County.

"The ginning commences with the picking of the cotton. Sixty Chinamen are employed at present, but after the first frost the force will be doubled. They pick from eighty to eighty-five pounds of cotton each per day; are paid twenty-five dollars a month, and they board themselves.

"The brothers connect the culture of hops with that of cotton. The picking of their eighteen acres has closed just in time to commence on the cotton, making no break in the season of employment. Their hops have yielded one thousand five hundred pounds per acre, kiln-dried.

"The variety of cotton the present year is with them the Dixon, and will yield four hundred pounds or over per acre."

The Visalia *Delta* mentioned that "in the vicinity of Centerville, Fresno County, there are this season a number of cotton fields which old cotton-growers pronounce equal to the best in many parts of the Southern States. M. J. Church, J. B. Sweem, and C. D. Davis have a patch each—the latter having a field of forty acres on upland, or plain land, irrigated by ditch."

The Fresno *Expositor* furnishes the following information concerning the crop of Mr. Davis, one of the gentlemen above named:

"Mr. C. D. Davis put in a field of forty acres, and paid five dollars per acre rent for the land, and used thirty pounds of seed per acre, which was planted in drills and well irrigated. There seems to be something peculiar in the growth of this cotton in the second crop. One picking has already been completed, and preparations are now being made to commence picking the second crop. The bolls of this appear in as great numbers on the plant, as large, and open as freely as those of the first. Some of the plants have as high as one hundred and fifty bolls on them. A sample of both plant and cotton may be seen at our office. All the labor attached to the cultivation of this crop was performed by one man, with now and then the assistance of Mr. Davis himself. The estimated expense of the crop, including rent, cultivation, picking, and all incidentals, amounts to seven hundred and seventy dollars. The present situation of the crop furnishes many evidences that may not be seen at other times, and it would be well for parties contemplating to grow cotton to inspect the crop at this time. The field presents the appearance of snow banks, as the gatherers leave the cotton in piles in the field, which presents rather a beautiful sight, especially in the evening. Mr. Davis is so well pleased with the success he has met with that he has rented one hundred and sixty acres of land for the same purpose next year; so have many others in that vicinity—in all one thousand acres, one hundred acres of which will be planted by Mr. W. Kipp and J. Hutchinson. From present appearances, we are led to believe that our county is soon to be known as a cotton-growing county."

The *San Joaquin Valley Argus*, of December seventh, gives the following information concerning the crop on the Merced River and Mariposa Creek:

"The cotton planters in this section of the county have nearly completed gathering their crops, and Colonel Strong or the Buckley Brothers, occupying adjoining farms, are turning out five and six bales each per day. Colonel Strong's machinery is run by horse-power, and does the work as handsomely as could be wished. He packs his cotton in a hay press, and though the bales are rather light, look handsome, and will preserve the lint well. He will finish picking in about two weeks, his crop upon the Merced plantation amounting to about one hundred and thirty thousand pounds of seed cotton, or about one hundred bales of clean lint. Buckley Brothers run their gin by steam-power, and pack with their hop press, run by hand-power. The bales they have turned out weigh from two hundred and fifty pounds to two hundred and ninety-five pounds, and they calculate their crop will amount to one hundred and fifty bales, most of which they will ship to Europe, that it may be brought into direct competition with the cotton of other parts of the world, and its true rank be ascertained. They have a force of seventy hands at work picking out the cotton in their fields, and will not finish gathering for two or three weeks yet. They have made arrangements for a very large increase in the acreage to be put in cultivation in cotton on their farm the coming season, a large part of which will be filled by tenants who have had considerable experience in cotton raising. Major

John L. Strong is superintending the gathering of the crop on Mariposa Creek, in this county. The cotton is not only of excellent quality, but is turning out largely. From what we can gather of farmers in regard to their intentions, the cotton crop of eighteen hundred and seventy-three will be three or four times greater than that of this season."

The *Southern Californian*, published at Bakersfield, Kern County, gives the following information concerning the crop of Mr. Stine, one of the planters in that vicinity:

"Mr. P. A. Stine has just finished picking his cotton, and we learn that it turns off over four hundred pounds to the acre. This is a very gratifying result to an experiment, considering the fact that it was not planted until a month later than it should have been. Some of it was also planted with corn, the two crops growing together, and he was not able to procure the best variety of seed. We learn that he intends to engage extensively next year in the growth of this valuable staple."

The Kern County *Courier*, of November thirtieth, also published at Bakersfield, in Kern County, mentions the same crop, as follows:

"SUCCESSFUL EXPERIMENT WITH SOILS IN GROWING COTTON.—We were shown by Mr. P. A. Stine, a few days since, a number of samples of cotton grown by him the present season, on different varieties of soil, comprising about all that are found in the alluvial portion of the great valley. They were all good, although differing somewhat in quality. But the best sample, decidedly, was grown on a piece of ground so strongly impregnated with alkali as to be unproductive for ordinary crops. Apart from the fact of the staple being longer and finer, Mr. Stine mentions the no less important one, that it matured much sooner and a greater number of bolls to the stalk, than that planted in what is considered our best soil."

Mr. Stine also writes under date of November twenty-sixth, and says:

"I send you to-day five labeled samples from my cotton patch. The variety, 'Golden Prolific,' is an inferior one. It is not worth near as much as the 'Dixon' and other kinds planted by Mr. Allen. I have sent to my native State, Louisiana, for seed to plant the coming year, a kind with which I am familiar, that produces a superior staple, and that I think will do well here. My little patch, however, has yielded surprisingly well, and satisfied me that this soil and climate are adapted to the culture of cotton. I propose to go into it next year to the extent of my ability. I don't think you will do wrong to recommend this to intending immigrants as a cotton country. The cotton of which I send samples was planted from the thirteenth up to the twentieth of May. It might have been planted five or six weeks earlier, without the most remote danger of frost."

Letters from W. G. Allen, one of the planters in charge of the cotton crop of the California Cotton Growers' and Manufacturers' Association, at Bakersfield, Kern County, under date of October thirty-first, stated:

"The first frost of the season occurred on the night of the twenty-sixth. The crop is maturing rapidly. I have ten Chinamen picking, who average sixty-nine pounds per day. That portion of the crop planted on alkaline soil is yielding more than any other portion of the entire field; fiber long and silky; variety, 'Dixon.'"

Under date of November seventh, he also writes:

"I can now safely pronounce my crop a success. The portions of the crop planted on alkaline soil will produce (400) four hundred pounds of lint cotton to the acre, while the remainder will yield about (300) three hundred pounds. The fiber is equally as good as the first samples we sent you, and is conceded by all to whom I have submitted it to be of the highest grade. I now have eleven pickers at work at (2) two cents per pound. They are now averaging (70) seventy pounds per day, which I regard as very good."

The Kern County *Courier*, of December seventh, gives the latest information concerning that crop, as follows:

"We learn that Mr. Allen expects to finish picking his crop of cotton to-day. The yield is equal to the average in the Southern States, and would have been as heavy as was ever produced in the United States if planted as early as it might have been. That portion of the crop which was planted first, (on the seventeenth of May,) about six acres in extent, has turned off nearly four hundred and fifty pounds of lint cotton to the acre. Of the several varieties of seed planted, the Dixon seems to have done the best."

The San Diego *Union*, of November fifteenth, also mentioned a cotton experiment made in San Diego County this season, as follows:

"We were shown yesterday several bolls of cotton from Mr. Knowles' ranch, in the Sweetwater Valley. Though short, it is of a very fine quality. Last year cotton of a much longer staple was raised on this ranch. The general opinion is that the Sweetwater Valley is well adapted to the growth of cotton."

Also another experiment, on the ranch of Mr. John F. Gould, in Tia Juana Valley, in that county, as follows:

"But the most interesting item given by Mr. Gould is about cotton growing. John Gould planted about a dozen cotton seeds when he made his garden, and one of the stalks now bears one hundred and sixty bolls. An old Texan was looking at this the other day, and declared that he never saw anything like it in the South; he said that one acre of land planted with cotton that would bear in that way, would be worth a thousand dollars; he estimated that there would be five pounds of cotton on that single plant. Mr. Gould will plant an acre in cotton next year as an experiment."

The San Francisco *Evening Bulletin* of December fourteenth, contained the following item:

"THE FIRST SHIPMENT OF CALIFORNIA COTTON ARRIVED.—Sixteen bales of cotton were received by Simon, Jacob & Co. to-day from the fields of H. F. Buckley & Co., Merced County. The cotton is of good quality, and some has already been sold to the Marysville Mill for trial. Buckley has some two hundred and fifty acres planted with cotton this year, and employs from fifty to sixty men in its cultivation. Col. Strong, the first cotton planter of the State, has also a considerable quantity of cotton in the neighborhood of Bear Creek and Snellings. As there has been a partial failure in the Eastern cotton crop, the California article will sell at a fine figure. Middling, and all above middling, is much scarcer in the market than usual. The California producers will demand the Eastern rates for their cotton. When another lot is received here, the consignees will make a shipment to Liverpool."

CONCLUSION.

The conclusion arrived at is, that in the future, every year cotton will be raised extensively upon such moist bottom and reclaimed lands in this State as are naturally adapted to the culture, and also upon such lands as are already, or may hereafter, be provided with facilities for irrigation, and that it will be planted earlier in the Spring than has been the case heretofore. That in years when the rainfall is abundant and the land is saturated with moisture, greater breadths of land not provided with the means of artificial irrigation, will also be devoted to this culture, as in such years the natural moisture will be sufficient to insure the complete development and maturity of the cotton, and larger than ordinary crops will be raised. That the production of this crop will stimulate manufactures and cause the fine water-power privileges existing where irrigating canals are possible, to be availed of to drive thousands of spindles and afford profitable modes of employment not now existing, for large amounts of labor and capital. From this time forward, the growth of the culture and the manufacture of cotton in California may be expected to be both rapid and certain.

HOW TO CULTIVATE COTTON.

As many of our people, who may desire to plant and cultivate cotton, after reading the foregoing, may want some instructions, we give below a practical letter, written by one of our best cotton cultivators—George L. Strong—to one of our most reliable seedsmen:

HOPETON (CAL.), January 5th, 1873.

GEO. F. SYLVESTER, *Seedsman, San Francisco:*

MY DEAR SIR: I am pleased to see the interest manifested by you in the extension of cotton culture in this State, inducing an attempt to promote it through the distribution of selected varieties of seed. I cheerfully comply with your request to furnish you with such instructions, relative to the preparation for planting and cultivating it, as will enable the beginner to treat it intelligently. Preliminary to any directions relative to planting and cultivation, it may not be unprofitable to indicate the localities from which satisfactory results may be expected.

I am convinced that cotton may be successfully and profitably cultivated anywhere in California between the isothermal lines of sixty and seventy degrees. Certainly, in the valleys of the Sacramento, San Joaquin, and Kern Rivers. I would not risk an extensive planting upon the low land bordering on the coast; but upon the drier lands, or on the plains, in seasons of ordinary rainfall—such as that of eighteen hundred and seventy-one and eighteen hundred and seventy-two was, or that of eighteen hundred and seventy-two and eighteen hundred and seventy-three promises to be—cotton should be tested thoroughly.

The indications of my experiment in Los Angeles County in eighteen hundred and seventy-one, lead me to hope for successful results from the immense regions referred to. One of the results of that experiment was the demonstration of the influence of sea air upon the staple. The seed of the shortest staple and current variety planted in the South, yielded there a lint which Eastern spinners and brokers pronounced equal to Sea Island.

The character of the land selected for planting should be moderately moist—a soil from which the moisture is gradually and surely exhausted as the season progresses. Cotton is not a voracious feeder like corn, and a damp, cold soil in which corn would flourish, is an unhealthy locality for the first named plant. The crops on the Merced River, in Fresno and Kern Counties, were all injured the past year by excessive moisture in the soil. In other respects, the plant flourishes on all soils, sands and clays alike.

The land should be plowed early—in the absence of facilities for irrigation—and plowed as deeply and thoroughly as possible, say from eight to ten inches. After plowing, the finer the tilth to which it can be reduced by harrowing and dragging the better.

The planting should be finished as early as possible after the frosts of Spring have ceased to fall. The cheapest method of performing this work is through the use of the planter. Cotton seed planters are made here at a cost of twenty-five dollars. With this implement one man and horse will furrow off and plant eight acres per day. A bushel of seed—thirty pounds—per acre is an ample quantity.

In eight or ten days after planting, the cotton will be above ground. If weeds should spring up between the rows, they should be exterminated promptly. For this work, the best implement I have discovered is Strong's horse hoe. The Knox horse hoe is the best substitute. When in the fourth leaf, the plants should be reduced to a stand by thinning them to one plant for every foot. One plant for every foot in the row gives a perfect "stand." The rows should be four feet apart on good land; on low, moist lands, the distance should be from four and a half to five feet. As long as weeds continue to come in the space between the rows, they should be exterminated by the horse hoe. It will not be necessary to use it more than twice in the same row. So, too, the hand hoe should be used to exterminate such as spring up in the drill, among the stalks. The work of thinning is executed by a hand hoe, from six to seven inches in width. A man and horse will go over ten acres per day with the horse hoe; a man will finish up about one acre per day with the hand hoe. This ends the work of cultivation, and costs from six to seven dollars per acre.

If the planter possesses facilities for irrigation, the work of applying water should be the first performed. If the land be thoroughly irrigated before plowing, cotton may be successfully planted upon it. If the plant should plainly indicate the necessity for it, then no more should be applied at one time than an ordinary rain would afford.

In California picking is a simple process. The requisites are a sack, a man or boy, and a place to stow the cotton. Ginning is alike simple; the gin is put up and set to work by the seller.

Any one who understands the management of a hay press can press cotton. An ordinarily strong hay press will answer for bailing, but a cotton press is preferable. The best gin now in use is the Gullett. Of this patent there are two kinds—the Steel Comb Gin, and new style light draft Gullett, called "Magnolia Gin." The former costs five dollars and fifty cents per saw, currency, delivered in New York; the latter five dollars per saw—freight to San Francisco thirty-eight dollars, coin. A fifty saw gin will turn off one thousand five hundred pounds of lint cotton in ten hours. Attached to the horse-power in common use, six horses are required to drive it.

The best cotton presses in use are Gullett's Handpress and Rembert's Plantation Compress. On the former three men can bale twenty bales, of four hundred and fifty pounds to five hundred pounds weight each, per day. On the latter the same number of bales, with the addition of one mule, will be reduced to shipping dimensions for the European market. The price of the former is one hundred and seventy-five dollars, currency, and freight to San Francisco. The latter, five hundred dollars, and freight to San Francisco. Orders for them left at your house will meet with prompt attention.

The profits of cotton culture the past year varied from twenty-five dollars to forty-three dollars per acre. A gentleman planted on Mariposa Creek, in this county, twenty acres on shares with me. After paying all expenses, including two dollars and fifty cents per bushel for seed, he realized a net profit of forty-three dollars and seventy-five cents per acre. I regard forty dollars per acre, net profit, the legitimate result in good seasons.

Respectfully yours, GEORGE L. STRONG.

PRESERVING FRUIT AND OTHER ARTICLES.

BY E. S. CARR, M. D., LL. D.,

Professor of Agriculture and Horticulture, University of California.

I propose to give you a talk on the preservation of food in general, so as to place before your minds some of the leading ideas that lie at the foundation of the subject—that of meats and vegetables as well as that of fruit. The entire object of all processes tending toward this end—the preservation of food—is to prevent its decay. It is, of course, a well known fact that organized substances, vegetable as well as animal, are much more prone to undergo change than purely mineral ones. This arises from their structure and the composition of the materials that enter into them. When we examine into their composition, we find that they are more prone to undergo decay than those of mineral masses. These substances that enter into the composition of food are principally four in number. One is carbon, which is found in a pure state in the diamond and in charcoal, and which forms, in the state of carbonic acid gas, the greater portion of all vegetable substances; oxygen, which forms by weight nearly a fourth of the atmosphere; nitrogen, which forms by weight about three fourths of the atmosphere; and hydrogen, which forms eight ninths of water. Now these elements form the greater proportion of all organized substances. There are others which exist in small quantities, but we may leave them out of consideration. Take the three which are found in a pure state only as gaseous bodies. Hydrogen is the lightest, and all, in their elementary state, are gaseous bodies. Let me call your attention to one of them. Nitrogen is the most indifferent substance in nature. All bodies that contain it are more prone to undergo decomposition than others. It exists in common nitre as one of the principal ingredients of gunpowder, and we all know how readily it there undergoes decomposition. In combination with it, no compound is so stable as otherwise. All organized bodies contain more or less of it. Starch does not contain any of it, nor sugar either. This is one reason that neither starch nor sugar decay in a pure form. But fresh meat and fruits will, because they always contain more or less of it. Carbon is evolved by combustion and by decay, and it is well known that

COMBUSTION IS ONLY ONE FORM OF DECAY.

All solid and liquid bodies that contain nitrogen are much more prone to undergo decomposition and decay. So we see from the very nature of the materials that form the fruits, vegetables, and meats, the reasons why they are prone to undergo decay. And this is what we try to prevent by all processes of preservation. I have put down on the blackboard the

CIRCUMSTANCES FAVORABLE FOR DECAY.

In order to have decay we need the presence of air, water, and heat—heat of from forty degrees to two hundred degrees. If we have such a temperature, and have water and air present, we have all the conditions necessary for the decomposition and decay of the substances of food. If we have only one of these conditions absent, decay will not take place. If we have the usual temperature, between forty degrees and two hundred degrees, and have water, but no air, no decay takes place. The reason is this: that air only contains in a free state the elements which can

TEAR TO PIECES ORGANIC SUBSTANCES,

Vegetable and animal; oxygen is the great leveler—it tears to pieces organized bodies, but only in a free state—only free oxygen can do this. You all know many of its characteristics. It makes gas burn, and oil, and candles. It takes hold of them and tears them in pieces; and burning is one form of it. So it is with all ordinary decay of animal and vegetable matter which is placed in the soil or remains on the surface—oxygen causes it. If it is moist, and we have oxygen present, then it goes to work and tears it in pieces and produces ordinary decay, whence arises new and simpler combinations than before. Suppose we have oxygen and water, but

A TEMPERATURE BELOW FORTY DEGREES,

Down to thirty-two degrees, where water freezes, we have no decomposition. Even above that point, at which water freezes, we can have no decomposition, and the oxygen cannot work. If air is present, and the proper temperature, but no water, decay will not take place.

WHEN WE DRY OUR MEATS

We may have a high temperature and all the other necessary conditions, but there is no decay. We must have water to produce fermentation and motion. A substance that causes decay must come into contact with that which is acted on. When there is water present it overcomes the elastic force of oxygen so that it can corrode and tear away. Take away the water, and air cannot come in contact with it. We must have air, water, and a temperature of from forty degrees to two hundred degrees. With

A TEMPERATURE ABOVE TWO HUNDRED DEGREES,

It is too hot for this decomposition. If we understand this, we understand all that is necessary to attend to in drying meats. Let us look in the first place at the influence of water. We preserve a great deal of food by drying it. We cannot take the water away entirely. Take a piece of wood, ever so well seasoned, and we can take from it from fifteen to twenty per cent of water; there is so little left that it will not readily decay. We preserve food by exhausting the water from it—by drying it. This we do gradually by an elevated temperature, though water will pass off at the freezing point. Ice, in a dry atmosphere, will

show signs of vapor. We get rid of the water that exists in substances which we wish to preserve by applying heat, and driving it off in vapor. Take a piece of meat, dry it, and the water will evaporate and pass off, leaving so little that it will not decay, because the oxygen cannot come into contact with the hydrogen. In some dry climates nothing will readily undergo decay. The atmosphere is very dry, so that it will readily take away water in the form of vapor. You are aware, of course, that in such climates water will dry off the body more rapidly than elsewhere. In the desert places of Arizona people can hardly live twenty-four hours without water. It passes off so rapidly in that dry atmosphere that intense thirst is quickly produced. So that when meat, fruit, vegetables, etc., do not dry readily in ordinary circumstances, we must use artificial heat and mechanical appliances. Of these that exist there are various kinds. There is

AN EXCELLENT PROCESS FOR DRYING FRUITS,

Which has been introduced on this coast at Sacramento and Santa Clara. It consists of a tunnel, five feet square and fifteen feet long, where the fruit is dried after being prepared by having the stones taken out, the skins peeled off, etc. The fruit is placed in tiers in the tunnel, on shelves, one above the other. The air in the bottom is heated by pipes to one hundred and eighty degrees; at the top it will be about one hundred and twenty degrees. The mechanical arrangements are such that the shelves fit in nearly air-tight, and move by four continuous chains that have brackets connected with them on which the shelves rest. As the chains revolve the shelves come down, and are discharged in rotation near the bottom. The shelves are so arranged in the tunnel that a current of hot air passing through takes away rapidly moisture enough, so that the fruit will be able to be kept a very long time. They are thus dried more rapidly than if exposed to the air at an ordinary temperature, or even warmer air. We can by this method rapidly prevent changes that represent incipient decomposition in the process of drying and preserving better than under any other circumstances. The process was patented in eighteen hundred and sixty or eighteen hundred and sixty-two, in Baltimore. Some one in New York, two or three years since, got a patent for pretty nearly the same process. It is a simple and quick method, and one by which we can get rid of the moisture and preserve the natural qualities of the fruit without being impaired, as they are in the ordinary process of drying. Fruits of all kinds, after treatment, present almost the same flavor as the fresh fruits themselves. The same principles that are applied in drying fruits are also applied in drying and preserving meats. We may make use of artificial warmth to get rid of the moisture, but the meats will only keep good a short time. All these substances that are used as food may be

PRESERVED BY EXCLUDING ATMOSPHERIC AIR.

It is several centuries since the first attempts were made to preserve meats and fruits by excluding the air. All have for their object the getting rid of the air, as we may have water, and the proper temperature for chemical change, but if the air is excluded, there will be no decomposition. It matters not whether substances are liquid or solid, we can preserve them by excluding the air. In the common process of drying fruits by exposing them to atmospheric air, we have a kind of incipient decay setting in. Exclude the air from fruits, and there will be no decay; they will last a thousand years. There may be a favorable temperature and water, but there will be no decay, because the oxygen is excluded in excluding the air. It is the same with solid articles, and with all animal and vegetable substances. We may get rid of the air by pumping it out. This process of preserving is often used in connection with others. The whole process of preserving fruits in jars or cans depends upon it. Let a jar of this sort (holding up a common glass jar) be filled with fruit; we put in syrup, which excludes the air by filling up the interstices between the pieces of fruit; there will still be a little air in the upper part, which we expel by heat. We cannot apply a heat of two hundred and twelve degrees, or the glass will break. But we put the jar in a vessel of cold water and accumulate heat till we elevate the temperature sufficiently to drive all the air out. The water, made into vapor, is also driven out. Then put the stopper in to prevent the air from going in. Now, if this is done perfectly, the arrangements we make use of will not allow the air to pass in, and the fruit will keep a very long time. In this connection, let me call your attention to a

NEW KIND OF JAR

Handed me this evening, more simple in the construction than the ordinary one, with a projecting rim of glass on the inside. It is covered simply with a metallic cover, japanned on the inside so that the acid of the fruit can act only a little on the projecting metallic parts. It comes against the inner projecting parts and fits tightly. India rubber fitted on the upper surface of the glass makes it air-tight. Through a small opening on one side we can let the air in by inserting the point of a knife between the cover and the India rubber. By putting the knife on the top of the India rubber, and pressing downward, the air can be easily admitted, and its pressure, which is equal to fifteen pounds to the square inch, easily removed. In the case of the ordinary fruit jar, the fruit is put in and covered with syrup and heat applied while the jar is opened. In this jar the cover is kept on loosely while the fruit is heated. By heating the fruit in an open vessel some of the flavoring qualities will escape. If we heat it in a confined vessel we obviate the difficulty. It is said that this jar effects this desirable object. It is placed in cold water, and heated a certain length of time, which depends on the material to be preserved. Strawberries would not take long; corn would take longer. The vapor passes out through the opening on the side of the jar. In fact this method is resorted to in preserving meats. Put meat in a metallic or tin vessel, and stop it, subjecting it to a temperature of two hundred and twelve degrees. The heat will cause the oxygen to be consumed by uniting with the elements of the organic matter, and the heat will cook the meat and preserve it from decomposition. Have a perfectly tight jar, and strong enough to resist the pressure of the steam on the inside, and the heat will change

THE MATERIAL THAT TENDS TO UNDERGO DECAY,

So that it will not decay so readily. Cooked food, meat, and vegetables will not decay so readily as uncooked. Have a temperature in the neighborhood of two hundred degrees, and the white of an egg will not decay so readily as before cooking. So heat excludes air, by expansion driven out, and it also acts in the organic matter of vegetables and on the part in meat like the white of an egg, and renders them less liable to decay. By having a confined vessel in which you can make use of applied heat, you will use up the oxygen by that process, and the heat will change the nature of the food so that the principle of decay born of it will be destroyed. It was used a few years ago exclusively to preserve meat. Australian meat was put up in and subjected to an elevated temperature of from two hundred and twelve degrees to two hundred and forty degrees. The cans were made strong enough to resist the small amount of steam generated during the process, and by which the food became cooked. The vapor generated on the inside passed out through the small opening. The operation was repeated two or three times. Sometimes the meat preserved by this process is over-cooked. Then there is another process by which, by the diminished pressure of the air, it can be cooked at a lower temperature. Sugar is made more quickly and at less expense of fuel by diminishing the pressure of the air in vacuum pans. Take the pressure of air from water and it boils at seventy degrees, although it will feel cold at seventy degrees to the hand. By having the vapors pumped from the upper part of the vessel while the heat is being applied, we can get rid of the air that subjects meat to over-cooking. Sometimes alcohol has been put in. Alcohol boils at a less temperature than water. There are a variety of other methods to prevent over-cooking.

THE WHOLE PROCESS OF PRESERVING

Depends upon excluding the air and changing the structure of the food, so that it will not decompose rapidly. This is done by heat and by the process of cooking. A great variety of arrangements are resorted to to produce this. Let me call your attention to one or two points in this connection, more especially with regard to meats. We use materials of antiseptic or preventative decay character. The most common is common salt. If we sprinkle our meats over with it they will be preserved. Olive oil preserves in this way animal food. When a quantity of salt is sprinkled over it, it abstracts the moisture and protects the fiber from the action of the atmosphere, and solidifies it so that it will not undergo decomposition from the action of the atmosphere. But meat is not as nutritive this way. It always becomes hardened. It will keep through the hot season, but it is very hard when we come to eat it. Now, the water in which it is kept—and meat consists largely of water—holds in solution the juices of the meat. Press them out, and we have a nutritive substance, which we take out in making beef tea. The nutritive matter is taken away and only the solids remain. You can skim it off when you boil the liquor. This is like the white of egg, and forms the nutriment. By preserving in this way, meat is rendered less nutritious and is not so easily digested, on account of being hard. A small amount of salt will preserve meat a long time, and not impair the quality much.

SMOKE AND CREOSOTE FOR PRESERVING.

It is also well known that smoke is used for preserving. There is in smoke a substance called creosote. It is that substance which makes the eyes smart when exposed to smoke. I have creosote in this bottle.

It is of such a nature that when brought in contact with organic substances it hardens them. Take a piece of meat and expose it to smoke, and it penetrates through the mass of the meat and gives it the flavor, and, by acting on the organized matter, renders it more insoluble. I now put the white of egg in contact with creosote, and the white of egg, which is liquid, will undergo changes. [Doctor experiments.] You see that the white of egg coagulates and looks as if it was boiled. The substance that exists in the juices of the meat is of like character to the white of egg, and the vapor of smoke hardens it; so smoke preserves articles of food, particularly animal food, from decay. There is another substance possessing something of the nature of creosote. It is extracted from coal tar.

CARBOLIC ACID

Is one of the most purely preservative substances in nature. This is generally used as a disinfectant. If we use a little of it dissolved in water, it will act on the substance we wish to preserve, and will prevent its decay. If I bring it in contact with the white of an egg, we shall find that it will be affected in the same manner as by creosote. [Experimenting.] Let me wet the end of a rod with it or pour a little liquid on it only. I put only a single drop on a part of the white of egg on the side; it coagulates it, and you see that nearly all the bottom part is coagulated. This, then, preserves it and prevents it undergoing decay. This substance, remember, is only sometimes used, as the flavor it gives meat is a little different from that of creosote, and is offensive. But if from one to four parts of carbolic acid be put in one thousand parts of water, meat may be exposed to its effects without any offensive resultant odor. It is sometimes used on a limited scale to preserve meat.

A VARIETY OF OTHER SUBSTANCES

Are also used. Alcohol is used, and acts in part the same way. Suppose I put a little white of egg in a vessel. I might take brandy containing fifty per cent of alcohol, and bringing it into contact with the white of an egg, the latter would coagulate at once. Alcohol acts like carbolic acid—alcohol affects white of egg in nearly the same way. In all animal and vegetable substances there are bodies like white of egg, the nature of which is to undergo decay when brought into contact with the oxygen of the air, with water, and when exposed to a favorable temperature. Alcohol preserves not only by hardening and making substances difficult to decompose, but it also prevents the growth of infusorial vegetable substances. This substance, in the juices of animal and vegetable matter, like white of egg, takes oxygen from the atmosphere, and then begins decay. There is a vegetable growth found in wine formed during fermentation. This is the

YEAST PLANT.

It is as much a plant as a tree. It consists of a cell. Alcohol, if it exists in any considerable quantities, will prevent the growth of this vegetable substance. This is why we never can make wine beyond a certain strength, as far as alcohol is concerned. We may have sugar enough to form from twenty-five to thirty per cent of alcohol in the juice of the grape, but we never can form twenty, because

ALCOHOL PREVENTS FORMATION OF THE YEAST PLANT.

And so it is in the juices of meats and plants. Always in connection with the decay of animal substances there is found a little new plant. It is a little vegetable substance, but in alcohol that substance cannot be formed. You will have a substance there acting on a substance like the white of an egg, and another substance preventing the formation of the yeast plant. You can preserve fruit by having twenty per cent or more of alcohol. Ordinary liquors have fifty per cent of alcohol, and wines from ten to twenty per cent; weaker ones from six to eight. California wines possess from six to ten or thirteen per cent. This is not enough to prevent decomposition. If we have twenty per cent, it will, and the more the better. There are a variety of materials that act on animal and vegetable substances in the same way as this.

Animal and vegetable substances are much alike in the matter of decay, and the same principles are involved in their preservation. There are several other materials, besides those I have mentioned, that prevent decay. Some are of a poisonous nature. We cannot use them in ordinary preservation, but we can in the preservation of articles not intended to be used as food—flesh, skins, etc. We may make use of certain

POISONOUS SUBSTANCES,

Such as arsenious acid, blue sulphate of copper, sulphate of zinc, chloride of mercury, etc. I will show you how they act on albumen, for albumen is the matter that goes to decay in plants and animals, as mentioned before. I bring corrosive sublimate dissolved in water. It consists of quicksilver and chlorine, a greenish gas, and is used for making blue glass. I put a little in contact with the white of an egg, and it acts like alcohol. Now it is a very valuable preservative substance. It will preserve fruits, meats, etc., but it poisons food. It makes substances insoluble. Blue vitriol acts in the same way. I take some in a tube, bring more white of an egg, and it acts in a precisely similar manner. I will pour blue vitriol on, and it will cook the white of an egg. [Experimenting.] See, it is completely cooked, as completely cooked as when I put in corrosive sublimate. Now, if I wet the white of an egg with it, soak wood in it, I can prevent its decay, and so

WE PRESERVE TIMBER,

Just as we do by creosote. If we take the vapor of coal tar, and apply it to wood, it will act in the same way, also, as I have shown in the experiment. It will harden the substance in the sap, that is like the white of an egg; it will harden it so as not to undergo decay, and the wood will remain unaffected by ordinary decomposing influences for a long time. Blue vitriol or corrosive sublimate applied to wood accomplishes the same object. If we apply this to the lower end of a tree trunk it will absorb it, and the entire trunk will be more or less saturated, so that it will not undergo decomposition for a long time. These substances cannot be used for preserving food, but are used when we wish to preserve for other purposes. I have shown that

HEAT PREVENTS DECOMPOSITION.

I will put some albumen on the table and make a simple experiment. All I have to do is to heat it. I do the same as is done in heating when the temperature is elevated. By continued heating it is converted into a solid mass, and cannot then be torn to pieces by the oxygen of the air so readily as before.

I have thus presented to you a few points in connection with the principles involved in these operations in a very desultory way. I may add a few more remarks.

PRESERVING MEATS.

By dipping fresh meats into paraffine melted at a temperature of two hundred and forty degrees, the paraffine will form a coating by which the air is excluded. Meats are preserved in Australia in melted fats. We can thus preserve the meats of sheep and cattle, that we formerly killed for the hides and tallow. By taking these and dipping them in melted fat at two hundred and forty degrees, we expel the moisture from the surface, then putting in casks and filling up with melted fat, it will keep for a long time. And so other agencies are made use of in the same way to accomplish the same end.

ARBORICULTURE, OR TIMBER CULTURE.

BY J. W. JONES.

The supply of timber is likely, in a few years, to become a matter of grave importance to the people of the United States. The once "boundless forests" are disappearing with alarming rapidity; and a day will soon come when we must become importers of timber, or do as is now done in Europe, use wood where nothing else will do.

The planting of trees, as generally done, is, at least, an expensive and uncertain operation; but when attempted on a large scale, where thousands or millions of acres are to be planted, it may be safe to say that not one fourth of the trees will ever be cut down as timber. The expense, in the first instance, of nursery culture, of transportation, of digging holes and planting, and the uncertainty of the result, will ever prove serious impediments in the way of extensive planting.

The object of this letter is to offer some suggestions on raising forests by planting seeds where the trees are to grow, and thus dispensing with the expensive and useless process of nursery culture altogether.

Every one at all versed in tree culture knows that a young tree cannot be transplanted without injury to its roots. The first roots which a young seedling makes are directed downwards; these are the "tap roots" of the future tree, and seem to be used chiefly to collect water, while the spreading surface roots collect nutriment. These tap roots, once broken, are rarely ever replaced, as originally formed; and a really fine timber tree, especially with reference to pines, is hardly ever produced. Every one must have observed the superior vigor of an undisturbed seedling over that of a transplanted tree. In fruit trees, this transplanting, and consequent stunting, may be of advantage, because fruit rather than wood is the object sought; but with the timber tree the object is just the reverse. In trying to establish forests in a dry climate like that of California, this is a very important matter to be borne in mind.

By the plan I propose of covering large surfaces with trees cheaply, expeditiously, and effectively, but a single small tool is required. If the blade of a strong mortising chisel be welded on to the end of a piece of gaspipe of about one inch bore, about four feet long, and welded on so that the hole through the pipe be uninterrupted, the tool or instrument is complete; and is so simple as to need no drawing to illustrate it. The planter, furnished with such a tool, carries a leather pouch slung over the left shoulder; so that the pouch hangs on the right side, a little below and behind the elbow. In this pouch or bag he carries the seed to be planted; the mouth of the bag to be kept open by any simple contrivance. The planter thrusts the chisel into the earth to the depth of one or more inches, according to the size of the seed, making the insertion at an angle of about forty-five degrees. He then, without withdrawing the chisel, raises the tool to an upright position, and having a single seed between the right thumb and forefinger, drops it down the tube into the hole made with the chisel with certainty, pats down the earth with the chisel, and, in passing on to the next position, presses down the earth firmly upon the seed with the foot.

If we suppose a line of five hundred or more men, each stationed at so many paces apart, each furnished with his planting chisel and pouch, the whole line advancing in regular order, keeping time at every move, we may easily imagine how a large space could be planted in a month. But, then, will the seeds so planted come to anything? Will not the long grass, and weeds, and bushes, choke and smother them out of existence? I may ask, how is it, that with all these disadvantages, young trees naturally grow up in our woods? They may suffer at first, but will finally overtop everything, and take the place of the grass, etc. In a dry climate like that of California, I am not sure but that the grass and bushes will be an advantage, as affording protection and shade for the first year. It is sometimes wonderful under what adverse circumstances young trees will struggle up and grow.

A most important matter, and one that requires a knowledge, not only of the trees, but of their natural habitats, climates, and conditions of soil essential to their free growth, will require considerable study in selecting the species to be planted. While some trees will only flourish in the particular conditions of climate and soil, and are confined to limited localities, others are widespread, like the red or Virginia cedar, or juniper (*Juniperus Virginiana*), which extends from Canada to Mexico, through many degrees of latitude, while the *Washingtonia* is confined to a few localities in close neighborhood. The one, the hardy, vigorous representative of to-day; the other, the last sad straggling representative of a bygone age. Some of the more hardy, vigorous species may be planted though as timber trees; they may be worthless, they may nevertheless act as nurses in protecting the less hardy or vigorous. Rows or even belts of the former may be necessary to protect the latter in particular situations; to encourage moisture; to produce even shade for a time, and to cut off cold, or hot, dry winds.

Get the seeds as near home as possible. California, or Oregon, or Washington, may furnish all that is necessary; still it may be necessary to look abroad for other desirable kinds. China, for instance, furnishes *Melia Azectrach*—a tree that will, I believe, flourish throughout the valleys and plains of California. Of exceedingly rapid growth, not particular as to soil, valuable for its almost indestructible wood, of large size, it ought to be planted by the million in California. In the Carolinas and Georgia it has become naturalized, reproducing itself by seed abundantly. It may be taken for granted that nature has somewhere on the surface of the earth produced trees that will grow in California, or in any other habitable country. On the great steppes of Asia, on the prairies, and on the so-called deserts of North America, nature has failed to produce trees. The result is a great aridity of soil and climate. Whether this aridity arises from topographical conformation, and is really incurable, or merely the absence of trees is the cause, or both, we should not be discouraged, for, as I have said, nature has somewhere furnished trees that will grow even in such situations; we have only to look for them. If in all the vast wilderness between the Rocky Mountains and the Sierra Nevadas, the Columbia and Colorado Rivers, there be anything like a tree, and that tree produces seeds, they ought to be planted on every situation where there is a chance for them to grow; and I am of opinion that where a tuft of grass, or bush of wild sage or artemisia will grow, there is a chance for a tree to grow also. These trees might be worthless, in an economical way; but they may prepare the way for a higher grade of vegetation. While the reckless many are hewing down the great forests of the country, the thinking few must devise means to replace the havoc. North America is destined to become a densely populated country; and the time will come when even the great so-called deserts will become valuable. Who, thirty years ago, could have predicted the progress that has been made by our population west of the Rocky Mountains?

So far as I know, the plan I propose of planting forests is original. The old process of raising in nurseries and transplanting is too slow for the age; besides, this process, after all, is the most natural. It may not succeed everywhere and with all kinds of trees, but certainly the chances in its favor are superior; and its value can be easily and cheaply tested on a small scale first. If I place a cheap, easily-made tool in the hands of every farmer in the country, and he will go to work and fill up only the waste places on his farm, we may soon have young trees coming on everywhere.

That the local Governments of many of the States will encourage the planting of trees as a work of necessity, will be some day understood; and that Congress will some day awake to the great importance of the matter, is to be expected; but, in the meantime, if it require one third of the surface of the earth to be covered with trees, to produce and maintain a congenial state of the atmosphere and a healthy existence, much must be done by private enterprise. Let every owner of land, then, who wants trees, though he may never live to see them grown, try the simple process I have described. A spare half day, taken at the right time, will result in five or ten acres of wood land in the course of time. And it ought to be a source of great satisfaction to him to think he is helping forward what will one day, I hope, become a great national undertaking.

CHARLESTON (S. C.), December 2d, 1872.

STEAM CULTIVATION.

BY ALEXANDER CAMPBELL.

Steam cultivation is a subject of vital importance to the future development of the science of agriculture. The harnessing of steam to the plow, when compared with the old, time-honored ox and mule team, is something like placing the locomotive engine and fast steamship of to-day alongside of the old lumbering stage-coaches and sailing vessels of a hundred years ago. With the aid of steam we travel with ease and comfort, together with lightning speed, in a measure annihilating time and space; our factories are driven by willing giants, untiring and certain as the sun, and in their efforts dwarfing into insignificance animal power of every description. And it is only reasonable to think that ere long the same agency will be universally tilling the soil and producing results equally grand.

The development of a successful system of steam cultivation has not yet been attained in California; and it is greatly to be regretted that inventors and promoters of this enterprise have had so little success and so little encouragement, for the wealth of brain, of time, and money expended; especially when the mechanics of other countries have more than realized their brightest anticipations, in producing something really practical and eminently successful.

I will not, at the present time, refer to the early history of the steam plow, nor give any description of the various forms of machines which have, from time to time, been unsuccessfully applied. But I will endeavor, as far as possible, to show that steam cultivation in some countries is not only successful, but that it is assuming gigantic proportions. In new countries, where the soil is very rich, and where a mere scratching is sufficient to insure a bountiful harvest, the economical difference between animal power and steam is not so great; but when the surface of the soil gets exhausted, and a more thorough and efficient mode of operation is required to produce the same results, the relative efficiency of the two systems becomes more apparent.

To begin with the earliest successful steam plow, we find a public trial took place between teams of horses and the plowing machine of John Fowler, under the auspices of the Royal Agricultural Society of England, at Chelmsford and Boxten Lodge, in eighteen hundred and fifty-six; the result being that the steam plow work was admirably well done, fully equal in regularity and precision to anything that could be done by horse labor—the cost of plowing being one dollar and eighty cents per acre—the judges being of the opinion that the cost of like work by horse-power would be at least one dollar and seventy-five cents per acre—the cost of both being identical.

At the Canterbury trials, in eighteen hundred and sixty, the judges went more fully and elaborately into the economical comparison between steam and horse-power. On a strong loam, with an indurated, gravelly subsoil, the land in some places strongly held together by indigenous herbage, Fowler's machine plowed at a total cost of one dollar twelve and one half cents per acre, allowing fifteen per cent upon first outlay for repairs and depreciation, and five per cent for interest, assuming two hundred working days in the year. The average draught of a good horse plow, turning similar furrows in the same part of the field, was found by a dynamometer to be six hundred and seventy-two pounds. According to experiment the average cost of horse-power was found to be twelve and one half cents for pulling one hundred and twelve pounds two and one half miles. In plowing an acre of land with a ten-inch furrow, the plow has to be drawn about ten miles, consequently the cost of plowing such an acre would be $6\times 112=672$, $6\times 12\frac{1}{2}\times 4=300$ cents, or $3 per acre, showing a difference of one dollar and eighty-seven and one half cents in favor of steam.

This was the last public competition between horses and steam that took place in England, and from the extreme care adopted to insure accuracy, and the searching nature of the trials, it was clearly proven that steam not only did its work as well as horses, but it was in every way superior, and at that time accomplished some work which it was found impossible to do with horses without an immense amount of time and money being expended to produce the same results.

It must have been highly gratifying at that time for the enterprising inventors, when steam plowing was little better than an experiment, to see their machine, surrounded by doubt and curiosity, covering them and itself with honor, and forever bidding defiance to bone and muscle. It will be needless for me to enter into any detailed description of the kind of machinery used at that time. New designs have been introduced, and the machines have been made simpler, stronger, and more effective, but the essential principles are still the same.

The last and greatest steam plowing competition took place at Wolverhampton in eighteen hundred and seventy-one; making eleven years of progress from the Canterbury trials. The utmost that a plowing machine was able to do at the Canterbury trials was about one acre per hour on light land, or one acre in two hours on heavy land. At the Wolverton trials, a set of John Fowler's tackle went into the field and cultivated three acres, to a depth of eight and a half inches, in forty-one and a half minutes, doing its work to perfection. In order to show the extreme simplicity and handiness of this tackle, I will describe the work as it was actually done. On Tuesday, June twentieth, at Barnhurst, the two engines, conveying their implements, left the depot field, traveled for a quarter of a mile, turning through two gateways, and were in position, ready for starting, in seventeen minutes. After the trial was concluded, the whole of the machinery was out of the field in fourteen minutes from the completion of the last bout. The breadth taken was at first ten feet ten inches, but after one bout, a couple of tines were taken out, because of their tendency to muffle in the grassy clover lea; the reduced width being then nine feet two inches, and the average depth of work eight and a half inches. The power of the cultivator was shown during the last bout by the severing of several tree roots, one of them being eight inches round. The time occupied in doing the three acres was forty-one and a half minutes, and at that rate, forty-one acres, three roods, and ten perches, would be cultivated in ten hours.

This work was done by the double engine set of tackle, and it merely consists of a pair of engines fitted up with single winding drums capable of coiling up eight hundred yards of best steel-wire rope. The two engines alternately move themselves along the headlands of the field, opposite each other, winding up and paying out the single line of wire rope for hauling the implement to and fro between them. The clip drum engine and anchor set is one of the oldest designs, and consists in having a drum or sheave under the barrel of the boiler. This sheave has a V-shaped groove, composed of a series of pairs of movable clips, which are self-acting. The pressure of the rope in passing round the sheave closes the clip pieces on it and prevents it from slipping, no matter what pull may be exerted by the engine. The traveling anchor for working with this engine on the opposite headland consists of a large rope pulley mounted under a frame which rests upon rollers low on the ground, furnished with six cutting discs, pressed into the soil by the weight of the machine, and easily moved forward, but presenting a great resistance to side movements. The implements to work with this tackle are fitted with an ingenious arrangement for keeping the rope to the same degree of tension when working on crooked and uneven fields. Another system is to fit the engine with two winding drums instead of a clip drum. With this arrangement, no slack gear is required for irregular fields. This tackle can also work on the triangular system with two anchors when the ground is too soft for the moving of the engine.

Next is the old roundabout system invented by Mr. William Smith, of Woolston. This consists of a twelve-horse-power portable engine, a detached two-drum windlass, upon four wheels, driven by a connecting shaft with universal joints, or by rigger and belt. The plan of working is by surrounding or partly inclosing the field or plot by the ropes, with anchored snatch-blocks at the angles, of which two—namely, those opposite the line of traverse of the implement—are shifted forward along the headland as the work progresses.

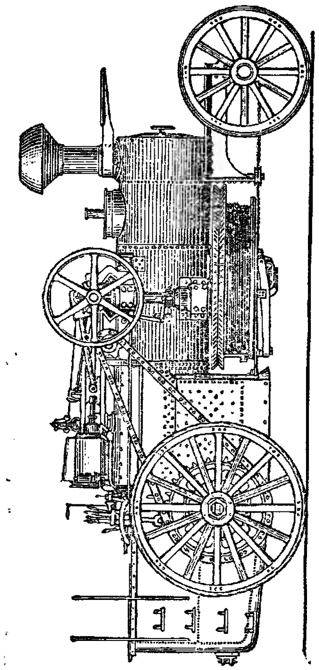
The last and newest design of steam cultivating tackle is what is called the Fisken system. This consists of a portable engine and two headland traveling windlasses, fitted up with winding drums. The windlasses are directly opposite to each other, and move forward alternately as the work progresses, on the plan of the double engine tackle. The windlasses are driven by a flying rope from the flywheel of the engine, the flywheel being grooved to fit the rope when put into position for work. A manila rope is carried round the plot or field, forming an endless band. This rope is supported on light carriers, to prevent it from dragging on the ground. The rope is always placed in a line with the windlasses, so as to gear with the friction wheels for driving the windlass drums. The rope is generally driven at a speed of thirty or forty miles per hour. This system possesses a number of good points which strongly recommend it for special localities. It is peculiarly well adapted for soft swampy land. The windlasses can be made light, with broad wheels or rollers. The engine can be placed in a position most suitable, where the ground is hard, or where it is convenient to fuel and water, the flexible nature of the rope allowing it to transmit its power in any direction; and I do not think there is the least doubt but that this kind of steam-plowing tackle is best adapted for the delta islands of the San Joaquin River; at least, its construction is more favorable to successful application than any other steam-plowing apparatus at present in use for this particular kind of work.

I have endeavored to give a short description of the different kinds of steam-plowing apparatus in successful use, and they all come under one general head. The power is transmitted through the medium of steel-wire ropes. Direct traction machines have so far been unsuccessful; nor does there seem any reasonable prospect of their ever successfully competing with wire-rope engines. Insurmountable difficulties stand in the way, which cannot well be overcome. Their heavy weight for the rough work they will have to do carries with it a train of resistances fatal to economy, durability, and good work, and I am confident if one tenth of the money, ingenuity, and time had been spent in trying to improve the wire rope sets of tackle, instead of the disastrous failures that have happened time after time from the building of these cumbrous masses of perverted ingenuity, there would have been plowing machines in this country equal if not superior to any of the productions of England.

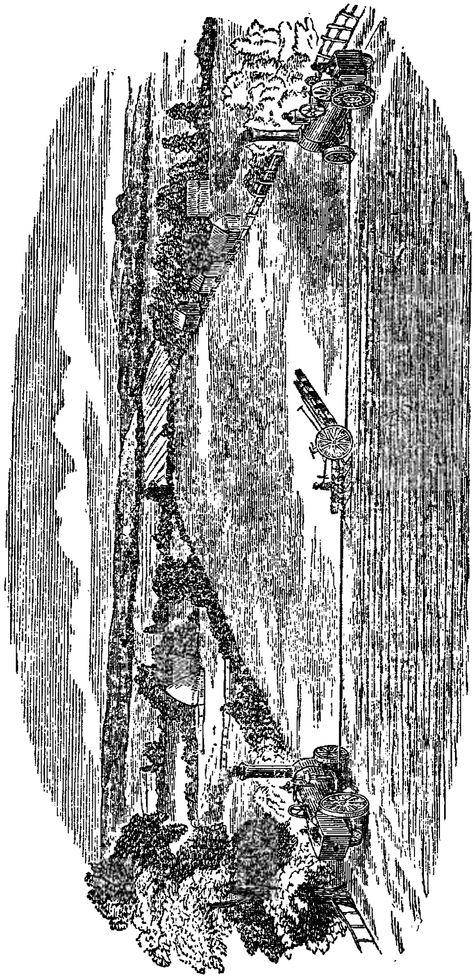
The next question will be, What are the advantages of steam irrespective of economy? Steam is able to do the work at the proper time; it does its work with greater rapidity than it can be done by horses. For example, a six-furrow steam plow in one bout turns up about the same quantity of land as twelve horses, and as the speed is about double, it may be calculated to turn over as much land per day as twenty-four horses. By steam-power only can thorough, deep cultivation be secured. The soil of this country has been subjected to a continual scratching for years, the consequence being that the subsoil remains untouched, and the surface soil loses its plant-sustaining qualities, and gradually becomes heartless and impoverished; steam, by cultivating the land deeper, brings up the subsoil, exposing it to the influence of the atmosphere, and in a measure increasing the arable area of the land. Steam cultivation in England has for a number of years been an established success, and it is fast becoming one of the largest enterprises of the country.

Hitherto I have only given a description of work done by the machines on exhibition at the annual agricultural Fairs, where one would only be too ready to suppose that the inventors and makers would make special machines and exhibit them under the control of their best skilled men, and that different results would follow in ordinary everyday work in the fields of useful labor when under the control of the farmer and ordinary laboring men. The results taken from lengthened trials in practical work, show this idea to be fallacious, and from nearly every country in the world a host of testimonials come pouring in in terms the most favorable and encouraging.

Quite a number of private companies in England own extensive sets of this machinery, and cultivate for the farmers, the interest on their capital invested being from ten to twenty-five per cent after allowing for wear and tear and depreciation of stock. The Northumberland Steam Plowing Company own twenty sets of apparatus, consisting of forty engines with implements, their capital being two hundred and ten thousand dollars, and the area of land worked per year being sixty thousand acres. The Durham and Yorkshire Company have twelve sets, with a capital of two hundred and ten thousand dollars. The York Company have started with eight sets, and a capital of seventy-five thousand dollars. One private firm in Kent has six sets, and a contractor in Lincolnshire has ten sets, representing a capital of one hundred thousand dollars. The Scottish Company, originated by Lord Dunmore, have ten sets, with a proportionate capital; and it has been well remarked in England, that if these companies can pay dividends of ten per cent or more, there is no reason why money should be wanting for such operations on any scale. And it has been further estimated that there is ample opportunity in this Kingdom for the application to steam husbandry of double the amount of capital now invested in railways, and I believe there are thirteen thousand miles of railways in the United Kingdom in full equipment. Double the amount of the cost of this railway system invested in steam plows would require the united efforts of nearly a million of skilled men for a whole year to stock the country, and this is in a country of considerably smaller area than the State of California.



Design representing an Improved Steam Plowing Engine.



Design showing the Engines at work.

When first steam plowing was successfully started, the only thing looked for was economy in working the soil; but after a little it gradually became apparent that the steam-plowed lands produced better, healthier, and more luxuriant crops than the horse plowed lands. For example, we will take two farms near London; on one of the farms a yield of forty-five bushels of wheat to the acre was obtained from drained and steam-plowed land, while an adjoining field, also drained, but horse plowed, produced but thirty bushels per acre; and a neighboring farm, neither drained nor steam plowed, gave but twenty bushels to the acre. Another plot of land near London was so poor that it would only bring three dollars to the acre; but after being plowed by steam it brought a clear profit of eighteen thousand dollars on grain crops, from five hundred acres.

An extensive English farmer says, who has used the steam plow from its earliest time, that on two fields he has grown fifteen crops of grain, wheat, and beans, in succession, without a fallow, and last year's crop of wheat was forty bushels per acre. On two other fields he has grown fifteen successive crops of wheat, the last crop quite equaling forty bushels per acre. Under horse cultivation the average crop of those fields was only twenty bushels to the acre.

In Louisiana, Mr. Lawrence also testifies as to his experience in equally favorable terms. He says: "My experience fully justifies me in saying that the yield of cane on the steam-plowed and steam-cultivated lands, and with less than half the labor, will be fifty per cent greater than can possibly be obtained by any other mode of cultivation."

A sugar planter in Cuba, writing to the Department of Agriculture, says, that steam plowing has doubled the value of his land.

It is useless to present any more statements, as all the reports are equally favorable. On the banks of the Nile more than four hundred are working, nearly night and day. In the earlier stage the Pasha of Egypt gave a prize of a gold cup, at the Royal A. S. Fair, in England, for the best steam plow. He introduced the most successful machines, and experimented with them, eventually giving orders sufficient to keep a machine shop going for two years, and employing about a thousand men. Now we find the steam plow working alongside the time-worn monuments of Egypt's ancient grandeur, and making a strange contrast in their useful and life-giving work to her relics of misguided energy and skill.

The future development of the steam plow will, I have no doubt, be as rapid to a higher state of perfection as its progress has been in the few past years to its present state of usefulness; but I do not think that ingeniously contrived cultivating machines will ever be able to supersede the ordinary plow. Out of the many ideas that are advanced from time to time, and which are to grind the soil into powder and prepare the seed beds to perfection, there has none of them nearly approached the plow for simplicity, effectiveness, and economy. A good plow turns the soil, and pulverizes it at the same time, to a certain extent, and it is much better, either in plowing or cultivating, to leave the land in a loose, rough state. This exposes it to the action of the atmosphere, and presents a larger surface for the absorption of the plant-sustaining food than the finest comminuted seed beds. Besides, no mechanical contrivance will ever be able to approach nature in pulverizing; consequently the best steam-plowing engine of the future will be the machine working with the greatest economy and efficiency, either in pulling plows or smashers. On the score of economy this leaves the wire-rope engines in possession of the field. The friction of a wire rope, eight hundred yards, does not exceed five per cent of the power transmitted. Nearly the whole power is used in useful work, and it is impossible for any direct traction engine of the same power to do the same quantity of work, as it has so many pounds of its own weight, including fuel and water, to carry along with it. Take a ten-ton engine and move it over soft ground, it will require a pull of two hundred and ten pounds to move a ton. A steam-horse is thirty-three thousand pounds raised one foot high per minute, at four miles per hour; this means the raising of two hundred and ten pounds ten times a distance of three hundred and fifty-two feet, requiring an effort of twenty-two and one half horses to move itself, without doing any work. Supposing the engine develops fifty horses power, this leaves only twenty-seven and one half horses power for useful work. In the other case, after deducting five per cent for wire-rope friction, we have forty-seven and one half horse-power for useful work. The wear and tear on the traveling engine will also be excessively great. The direct traction system may work very well on land comparatively level and firm, but it is quite impossible at the present time to make them sufficiently reliable under all circumstances. I also might have made some calculations relative to the cost of steam and horses for doing the same class of work, but it is entirely unnecessary, as animal-power can never compete with steam under any circumstances where large forces are required.

I hope, ere long, to see steam plowing take a firm foothold in California. Her immense plains; rich, deep, alluvial soil, free from any obstructions, peculiarly adapt her for receiving the steam plow. It would add millions of wealth to the country, and ameliorate the condition of all classes engaged in agriculture, covering the farmers' laborers with a dignity and intelligence which cannot be maintained under the present system of everlasting drudgery.

WHEAT BAGS.

[Originally published in the *Rural Press*.]

One of the greatest questions of the day to our farmers is that of wheat bags; so important, that during a year like that just closed, a difference in cost compared with a previous year, of five cents per bag, would have made a difference of six hundred thousand dollars to be taken from or put into their pockets according as the article rose or fell. Last year, however, the margin between the highest and lowest prices was as much as seven cents, or a difference on the whole quantity used of eight hundred and forty thousand dollars. Considering the interest taken in this question by our readers, we have been at some pains to obtain special information regarding the bag trade. We begin by giving a table of

PRICES

For the past year. The present selling price for hand-sewed English burlaps is fifteen and a half cents, with a light demand, as is usual about this time (January). This is about half a cent advance on the price prevailing during the latter part of January last year, which was then fifteen cents, but it is three cents advance on the price prevalent at the beginning of that month, and is from three and a half to five cents higher than the prices prevailing in January, eighteen hundred and seventy-two, which were from ten and a half cents to twelve cents, and is five and a half cents higher than the price ruling in January, eighteen hundred and seventy, when, on the twenty-first, one hundred thousand hand-sewed wheat bags were sold for ten cents. The following table shows the prices for the past year and for the years eighteen hundred and seventy, eighteen hundred and seventy-one, and eighteen hundred and seventy-two, during the months when the principal demand is felt:

PRICES OF ENGLISH WHEAT BAGS, FROM FEBRUARY TO OCTOBER, FOR THE YEARS EIGHTEEN HUNDRED AND SEVENTY, EIGHTEEN HUNDRED AND SEVENTY-ONE, AND EIGHTEEN HUNDRED AND SEVENTY-TWO.

	1870.	1871.	1872.
March	12½	11@15	16½@17
April	12¼@13¼	13@14	18
May	13¼@14	13@14	17½@18
June	13¼	15@16	18
July	13@15	12@14	16½@17¾
August	12½@13	12@13¾	18@19
September	10@13	12⅝@12¾	18@19

In March the demand usually begins and jobbers commence to lay in a stock for their customers. Then the price runs up a couple of cents over what it has been during January and February. The culminating point is generally reached in June and July, when farmers are able to estimate their requirements, and when everything, old or new, that can be pressed into service, becomes valuable. This year, however, the highest prices were reached in August and September, as neither farmers nor dealers were at all prepared for the extraordinary demand, and the market being bare, all afloat were bought up long prior to arrival.

DURING THE SEASON,

The highest price reached, in eighteen hundred and seventy, was fifteen cents, in July; in eighteen hundred and seventy-one, sixteen cents, in June; and in eighteen hundred and seventy-two, nineteen cents, in August and September. The lowest price, from February to October, was, in eighteen hundred and seventy, ten cents, in September; in eighteen hundred and seventy-one, eleven cents, in March; and in eighteen hundred and seventy-two, sixteen and a half cents, in March. The prices during the months of eighteen hundred and seventy-two not given in the table were as follows: January, twelve and a half to fifteen cents; February, sixteen cents; October, fifteen to eighteen and a half cents; November, fifteen and a fourth cents; and December, fifteen and a fourth cents. They will, so say the dealers,

REMAIN FIRM AT PRESENT PRICES

Till May, unless a north wind comes and there is a prospect of a short crop. If so, they say they will fall about one and a half cents. But everything at present is in favor of their rising. If the crop turns out according to universal expectation, there may be over twenty millions of bags required. Of these, about five hundred thousand can be bought second-hand—there are now nearly one million in the hands of the trade—thus leaving eighteen million five hundred thousand to be supplied by importation, or by local manufacturers. The latter source will supply eleven millions of bags this year, so that we will require to import seven million five hundred thousand by next September; that is nearly double the quantity imported in eighteen hundred and seventy two. During that year there was used twelve millions of bags, of which one million five hundred thousand were second-hand, one million five hundred thousand were manufactured on the coast, and of which four millions were carried over from eighteen hundred and seventy-one. This leaves a balance of three millions, to which must be added two hundred thousand English now in the hands of importers, making the total import of bags during eighteen hundred and seventy-two to be three million two hundred thousand. The competition of

THE LOCAL MANUFACTURING TRADE

Will help to keep prices within limits. But for the two million two hundred and fifty thousand manufactured here last year, wheat bags would have reached twenty-five cents. As it is, they can be profitably made at fourteen and a half cents each, and probably even lower. And English, or rather Scotch, wheat bags cannot give a profit to the manufacturer at Dundee or Glasgow, except thirteen and a half cents to sixteen cents is received for them in this market, where formerly twelve cents to thirteen and three fourth cents would have paid. This is in consequence of the duty being raised ten per cent. The first cost in Scotland is seven and a half cents to nine cents, to which must be added two and nine-tenth cents to three and three-fifth cents for duty, one and three-fourth cents to two cents for freight, and one cent for insurance and other expenses, as well as five per cent for profit. Last year the Oakland factory supplied the trade with bags from one cent to two cents cheaper than those imported, and it is claimed that the machine-made bags are as large and as strong in every way as the imported. Hitherto the

DUTY FAVORED THE IMPORTER

On material—being thirty-five cents, while on bags it was only thirty cents; but last year, in the revision of the tariff, that was all changed, and now the duty on bags is forty per cent, while that on material is only thirty per cent. The bag manufacturers say that they will be able, next year, to supply all the bags required on the coast. The farmers may expect

CHEAPER BAGS,

For the agents here will have their hands full of consignments, and will be ordered to sell at any figure, for only a small percentage of the bags sent to this market are sent to principals. The dealers here have them consigned to them by merchants in England and Scotland, and, of course, so long as they obtain their commission, they are, to a certain extent, satisfied.

THE OAKLAND MILL,

Which has been in existence about three years, made last year one million yards of burlap, which is about equivalent to the same number of bags. This year they will make two millions. This will leave the balance of raw material required by our bag makers to be imported. One assertion made by a leading bag maker of this city deserves the serious attention of those who may contemplate entering into the cultivation of jute. He affirms that this plant cannot be cultivated here with profit, inasmuch as it can be imported from Calcutta, ready for the mill, at five cents per pound.

THE STOCK ON HAND

At the end of the years eighteen hundred and seventy, eighteen hundred and seventy-one, and eighteen hundred and seventy-two, has been as follows: January first, eighteen hundred and seventy-one, four million five hundred thousand bags; January first, eighteen hundred and seventy-two, three million eight hundred thousand and sixty-nine bags; and on January first, eighteen hundred and seventy-three, two hundred thousand bags, and seven hundred and fifty thousand yards of burlap.

GRAFTING THE GRAPE.

As very many grape growers, who, in the early times of grapevine planting, had very few other than the more common Mission variety, suited only to wine making and table use; and as the raising of grapes for raisins is likely to be attended with larger profits than wine making; and as many persons in different localities of the State are anxious to change their varieties for the raisin grape, by grafting their already well established vines, we will give the facts which we have at hand in relation to the success and manner of grafting the vine.

Vines should either be grafted early, before the stock on being cut begins to bleed, or it should be deferred till the vines have made a vigorous start and put out a few of their first leaves. At this stage of growth they bleed but little, if any, when cut. Some persons prefer the early season, others the later, and both are about equally successful.

Both grafts and buds can be inserted on the old wood of the vine anywhere from four inches below the surface to five feet above, but it is altogether best to graft at or beneath the surface of the ground; then the entire vine will be of the desired kind.

MR. J. D. PARKS

Says: "The best time for grafting is when the stock is as far advanced in growth as the setting of the fruit; the stock should then be cut down, the scion having been kept in a dormant state. In grafting vines, I have cut them off at the surface of the ground, and with a knife have split the stump in the middle and inserted the grafts, cut in a wedge shape. They have always grown." (See Figures I and II.)

Fig. I.

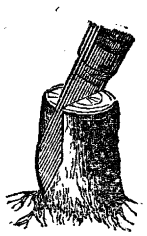


Fig. II.

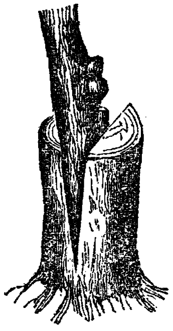
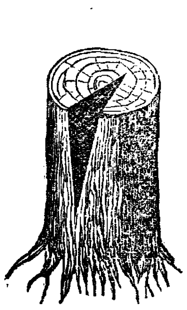


Fig. III.



MR. CLEVELAND

Says: "I took twelve Isabella vines of four years old; in taking them from the ground I took the greatest care to preserve my root. I then planted them outside the grape house, carried the stem to the inside, under ground, sawed it off two or three inches below the surface, split the stock, and inserted two scions in each, pressed the earth as tight as possible about them, and so left them. As soon as the eyes had pushed enough to be tied, I pulled out the scion which had the weakest growth and trained the other up under the rafters.

"They all grew that season to the top of the roof, fourteen feet, and were there stopped. In the Fall I cut them down to five buds each. The following Summer they bore, and ripened their fruit well, and have continued to bear more and more the two seasons since. I allowed one the past season to bear twenty pounds, which was too much, and it was not well colored. The rest bore about twelve pounds each, and ripened well."

DR. SIDNEY WELLER,

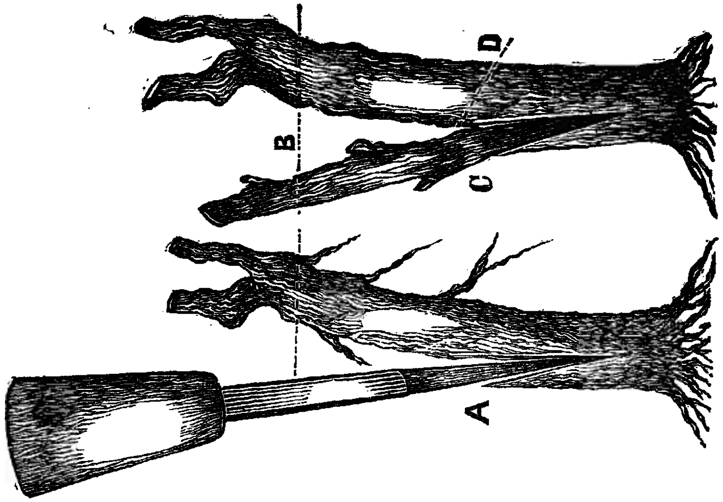
Of North Carolina, says: "It is the uniform result of long experience, that, if grafting is effected on stocks procured or dug up from the woods, success, with due painstaking, will surely follow, if done at any time from the complete fall of leaves in Autumn until late in Spring, or even Summer, when the scion can be kept back from sprouting. But if the graft be on stocks not dug up, or stands where it is to remain, it must be done in the Fall, or early part of Winter, to insure success. No clay or any other covering of the grafted part is necessary in grafting grapevines even with the ground.

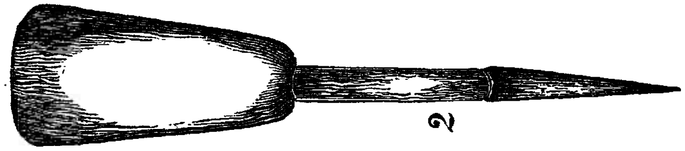
"All that is to be done is to saw off your stock and put in your scion, with two or three buds thereon, wedge fashion, as in cleft-grafting fruit trees, and then draw earth around a few inches high, leaving one or two buds above ground; or where the stock is very large and inconvenient to split, I have made a gimlet hole and inserted the scion spile fashion, and then drawn the earth around. Grafts often bear some fine clusters the first season of growth, and pretty considerably the second."

MR. AMOS GOODWIN,

Clark County, Indiana, says: "Permit me to describe a method of grafting the grape upon old roots, that I have never seen in print. Cut the old root off, some two inches below the ground, by a horizontal cut; then choose a gimlet just the size of the scion to be inserted, and bore from one to three or four holes, according to the size of the root, and insert the scions, first removing the loose bark; the holes should be two or three inches in depth, and the scions should fit accurately. I have never known them fail to grow. The holes should be in the direction of the grain of the wood. I have never known this method fail, and I have never succeeded with any other, though I have frequently tried both cleft and splice grafting."

Having recently had an interview with Mr. T. L. Grigsby, a practical vine grower of Napa Valley, he communicated to us his method of grafting the vine, and as it differs materially from either of the modes before recommended, and as the new plan possesses in some respects advantages over the old methods, we lose no time in giving it to our readers.

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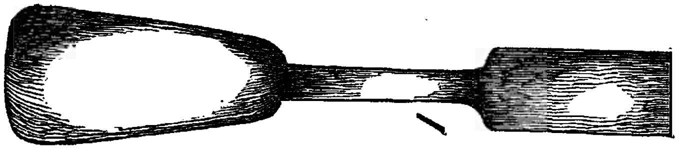
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Of the cuts which we present, Figure 1 is a tool of steel, chisel or rather wedge-shaped, and sharp on its lower edge, and from three quarters of an inch to an inch wide. Figure 2 is the same tool seen edgewise. The mode of using it is this: first remove the soil from around the stock to be grafted and also any small surface roots, between the dotted line B—which represents the surface of the ground—and the main roots below. With the left hand gently bend the stock, whether it be half an inch, an inch, or two or three inches in diameter, and insert the cutting tool, pressing it down into and upon one side of the stock, if it happens to be wider in diameter than the tool; but if less in diameter than the tool, let the cut go entirely across the stock, as at A.

Having previously fitted the scion wedge-shaped and a little thinner on the inner edge than the outer, withdraw the tool and insert the scion, with the bark of the outer edge to correspond as nearly as possible with the bark of the stock, and then letting go the left hand, the stock springs back to its original position, firmly holding the scion in its place as at C. Then replace the soil, pressing it carefully down with the hand around the stock and graft, leaving one bud of the graft only above ground. No other covering for the incision in the stock is necessary.

In May, when it is ascertained that the graft has taken, by the starting of the bud or buds—for sometimes the top bud will dry when the other one or more will live—with a fine saw and an upward cut, remove the top of the stock at the point indicated by the dotted line D. The two material advantages of this mode are these: first, it is almost certain to succeed every time; and secondly, if it does not succeed, the vine is not injured in its production of a crop, being the same as though no attempt had been made to engraft it.

Scions for grafting should be cut in this State as early as the first of January, and not later than February first; and they can be set at any time from the tenth of January to the tenth of March, with almost certain success, provided the scions are in good condition, namely, alive and moist, but not budding out. They should be kept back till a convenient time for grafting, by burying them in the soil in a cool place.

Our own experience has satisfied us that there need hardly be an instance of failure by the plug method. We have tried it upon the native vines of our mountain ravines, grafting them with the Mission grape, and have invariably succeeded, the graft making a growth of fifteen, and in a few instances, twenty feet, the first season, and some of them producing from one to three bunches of grapes. The holes should be bored with a smooth-cutting bit, a little smaller than the graft, and as near the bark or outside of the stump as possible. Two inches is deep enough. The graft should have two or three buds, if short-jointed; if not short-jointed, one is sufficient. The end to be inserted should be fitted by removing the bark and enough of the scion to allow it to enter, but fitting as nicely as possible; the upper part of the fitted portion should be cut with a shoulder, that the bark of the lower portion of the part of the scion left out of the stump fit down fair upon it; and the nearer the bark of the scion comes to the bark of the stump the better, though a positive union is not necessary as in grafting fruit trees.

We have been successful in grafting the vine by every known method, and yet we sometimes find the stump of the vine at the ground of such a twisted, gnarled growth, that it cannot be split in good shape to receive the scion. In such cases we either resort to "plug" grafting, or the plan as presented in Figure III. A wedge-shaped notch is made in the side of the stump with a fine saw, then made smooth with a sharp knife, or it can be made with the knife alone; the scion made to fit, and pressed firmly and closely into place, and tied in by a strip of cloth or tape passed entirely around the stump; the earth is then to be drawn up over the whole, except a single bud left even with the surface. This method is less injurious to the stump than when cleft, as in Figure I. Grapevine budding is more properly done in August and September than in the Winter or Spring.

PARASITIC INSECTS.

BY W. P. GIBBONS, M. D.

The experienced general, before he hazards the issue of battle, makes himself acquainted with the topography of the country, the resources of the enemy, and other conditions which are calculated to weaken or increase the power of his foe. In humble imitation of this intelligent foresight, I propose to examine into the conditions which minister to the propagation and development of some of the lower forms of animal life, before engaging in the effort to explain how it is that beings which are almost beyond the range of unaided vision may destroy the prosperity and threaten with famine and pestilence large communities of the human family

The limits of a single lecture will necessarily cause the exclusion of much interesting matter, and give an appearance of incompleteness to the present effort that will be very acceptable to the rigid pen of criticism.

The animal world is composed of such a vast number and great variety of forms, that for the purpose of facilitating its study in detail certain divisions are recognized which group together those which are related to each other by common characteristics. Thus there are four primary divisions, which include: first, the vertebrata, or those which possess an internal frame or skeleton of bone; second, the annulose, or articulata, which include those whose skeleton is external to the body, and arranged in segments or rings; third, the mollusca, whose body is soft throughout, but sometimes covered with shells; and, fourth, the radiata, whose essential character consists in organs arranged in a radiated or star-like form around the orifice of the stomach. In addition to these there is a vast family comprising lower and inconspicuous forms, many of which are so nearly allied to simple vegetable structure as to render it doubtful where the animal ends and the vegetable begins. These are classified under the division of protozoa.

Our subject belongs to the family articulata, the external envelope of which serves the same purpose as the internal bony framework or skeleton of vertebrated animals, as it determines the form of the body, protects its soft parts, and gives points of attachment to the muscles. This external skeleton, however, is not bone, but consolidated skin, containing a large proportion of horny or calcareous matter, as may be seen in the crawfish and lobster. The term "articulated" implies that the body is made up of an assemblage of segments which are attached to each other longitudinally, and held together by a flexible membrane which admits of considerable motion. There is also complete bilateral symmetry, the two sides being exactly alike, not merely in external form, but for the most part in internal structure.

In some types of this order there are nothing but rudimentary feet, as in the leech. But in cases where the members are fully developed, there are never less than six feet, while they are sometimes very numerous. A distinct head and eyes are almost universally present.

In the lowest grades, the successive segments of the body are almost exact repetitions of each other, so that each segment can almost be regarded as a distinct individual. Such is the common tænia or tapeworm, which, though having a gastric cavity and a system of circulation extending along each margin of the entire body, yet each segment contains within itself the means of producing fertile ova; so that, as the posterior ones are detached from time to time from the main trunk, they are loaded with fertile eggs, and they retain vitality so long as is necessary for the preservation of their contents. These detached segments have not the power of adding new segments to themselves, nor of reproducing the head, which remains attached to the surface of the intestine by means of a double circle of hooklets. Around these hooklets are four suckers or pores, from which the animal is nourished—the successive addition of segments originating from the neck. The head of this animal is not larger than the head of a pin.

There is such a wide range in structure among the members of this family that it has been further subdivided into orders, two of which we will here recognize, viz: the Hemiptera, which includes true bugs, plant lice, bedbugs, and body lice; and the Arachnoides, which includes spiders and mites. Insects have thirteen segments to the body: first, the head, containing the mouth, eyes, and antennæ or feelers; the second, third, and fourth segments constitute the thorax, the first of which contains the first pair of legs; the second, the first pair of wings and second pair of legs; and the third having the second pair of wings and third pair of legs. The remaining nine segments form the abdomen or body. Sometimes, however, one or two of the last segments are but imperfectly developed.

The legs consist of several pieces, and from a supposed analogy to the limbs of vertebrated animals, the joints have received the names of the coxa, or hip; the femur, or thigh; the tibia, or shank; and the tarsus, or foot—the latter having two or more joints.

All articulated animals have a nutritive, a circulatory, a respiratory, and a nervous system. The simplest form of an alimentary canal is found in the larva of some, which, living on liquid food and expelling no solid excretions, is nothing more than a straight tube, ending in a blind sac.

Though the wings of insects perform a function similar to the wings of birds, and of some other vertebrata, there is no further analogy between them. The basis of aerial locomotion in bats and birds is formed by an extension of the skin tissue over the superior extremities. While among insects, the wings are superadded organs; and though serving the purpose of flight, they have such a close relation to the respiratory organs that Oken calls them "aerial gills."

We have now to remark that insects, as a general rule, are not hatched out from the egg in a perfect form. In the first stage they appear as grubs, or caterpillars; during their life as such they pass through several moultings or casting off of the outer skin. In this condition they are called larva. As they approach the second stage of life the wings begin to form under the skin, and they stop eating. In this condition they remain for various periods, having either enveloped themselves in cocoons, as the silkworm does, or undergoing a great thickening of the skin, as the hawk-moth; or hiding themselves behind loose leaves, or in crevices, or in the ground, as do some of the beetle tribe. This stage is called the chrysalis or pupa state. They emerge from this in the form of complete insects. The final functions of life are then performed—the females deposit their eggs, and both sexes pass out of existence.

At this point it will be necessary to make an apparent divergence to the vegetable world in order to understand the manner in which some forms of insect life oppose their destructive agency to human skill. The ultimate tangible atom of vegetable life is to be seen in the simple cell, which is a spherical, transparent body, composed of a thin membrane which forms its covering, and the contents thereof. In a later stage of development a granule appears, which is generally attached to one side of the inner wall of the covering. This granule or cell germ gradually enlarges and absorbs the contents of the cell until, ultimately, it occupies the entire sphere. As this process is going on there may be observed a contraction of the germ in the center. This contraction increases, and finally separates the germ into two parts, each one of which is a perfect cell, endowed with all the functions of the parent. As development progresses, each of these undergoes the same change and are divided in like manner. By the continuance of this process is formed the simplest vegetable structure, composed of a single series of cells, as the conferva, etc.

Sometimes, instead of increasing in a single series, they subdivide laterally, as well.

This mode of cell increase, whereby the entire mass of the protoplasm divides and subdivides, is called increase by fission. A second method of increase is by gemmation, in which little elevations are first visible projecting from the cell, which gradually enlarge and are subsequently either separated from the parent cell by constriction of its base, as in the yeast plant, or they form branches, as in chara.

The third mode of increase is that by which cells originate, like embryos, in the interior of the parent cell, as exemplified in the protococcus or snow plant, which increases with such wonderful rapidity as to redden immense areas of arctic snow in a single night.

It is this difference in the mode of cell multiplication which gives origin to different forms of animal and vegetable tissues. It is necessary, however, to distinguish between the act of development and the force or primary cause which produces that development—a point which it is not proposed to discuss at this time.

Now, as the vegetable organisms derive their nutriment from the air and the earth, in the form of water, carbonic acid, and ammonia, we will give an illustration of the manner in which these substances minister to the development of vegetable life. Take an ordinary seed—a chestnut, a buckeye, or a bean, or a peanut—and remove the outer covering; everybody knows how to dispose of peanuts after the shell is removed. The part which is thus eaten, commonly called kernel, in some plants is composed of a single mass, as a grain of corn, and in others of two parts, generally symmetrical. These parts are called cotyledons; between, and attached to them by a small filament extending to each, lies the germ. In the diagram these filaments are elongated, in order to show their manner of connection with the cotyledons, which are mainly composed of starch; in other kinds of seeds there is oil and mucus. In either case the cotyledons form a mass of food, which, by undergoing changes immediately to be noticed, goes to the development of the germ till such time as it is able to assume an independent life and elaborate its nourishment from the soil and air. The germ is composed of two parts—the young radicule or root, and the plumule or young leaves.

There are three conditions necessary to effect the germination of seed, viz: heat, air, and moisture. Moisture softens and swells the hard substance of the cotyledons, and renders them susceptible to the chemical action of the air, which action is promoted by heat. These agencies effect the growth and development of the plant; they do not give it life, for life is something behind the chemical changes which occur in organic structures.

I have said that the cotyledons are composed mainly of starch. Near the germ of seeds there is also a small deposit of a substance called diastase. In composition it is allied to gluten, or albumen, and it contains nitrogen. It possesses the remarkable property of changing a solution of starch into dextrine, and then into grape sugar, acting slowly at a temperature of thirty-two degrees, and attaining its most rapid force at one hundred and fifty degrees. The starch of the cotyledons being thus changed and reduced to a liquid form, commences a movement toward the germ through these thread-like vessels, which connect the two.

With this process commences the actual growth of the germ. Its radicle, or root, works its way down in the soil, while the further development of the plumule, or leaves, tends to an upward direction, carrying the cotyledons with it. So soon as this portion of the young plant becomes exposed to light, there commences another action, under the influence of the chemical rays of the sun; and the true process of vegetable life is now established, and solid woody fiber becomes a constant product of this action. The cotyledons, or, as they are sometimes called, the nursing leaves, together with the true leaves of the plant, absorb carbonic acid from the air, at the same time the roots absorb water from the soil; for it will be observed that the roots are now sending out young fibrils to supply the leaves with the new demand for nourishment. As yet, there is no system of circulating vessels developed; the contained liquids passing from one cell to another through the walls thereof by a process called by Dutrecht endosmose.

Presently, however, some of the walls between a linear series of cells are broken down, and a system of tubes, more or less complete, thus established, which constitute the principal channels for the ascending sap. As the leaves are the organs through which evaporation of superfluous moisture is accomplished, the upward current of sap is proportioned in activity to the number of leaves and to the perfection with which they perform this function. But the leaves also absorb carbonic acid and ammonia from the air, and their expanded surfaces are the localities where most of these chemical changes take place, which result in the production of woody fiber, gum, starch, albumen, sugar, and all other secretions peculiar to the vegetable world. But atmospheric carbon is not only absorbed, but, after absorption, it is decomposed within the tissues of the plant, the carbon being retained to combine with the elements of water, as part of the secretions just named, and the oxygen being returned to the air; this process constitutes the respiration of plants. By again referring to this diagram you will see the essential relations of carbon to vegetable matter. Nearly all vegetable products are composed of carbon, combined with hydrogen and oxygen—the elements of water—in nearly the same proportion.

This plumule, to which we have heretofore referred, now contains a bud within the folds of the young leaves. The extremity of every branch and every twig of a tree also incloses a bud; these are called terminal buds. Go to any fruit tree at this present time and cut off a small twig of last year's growth, and you will observe several buds along the twig from one to two inches apart, and at the very extremity you will see the terminal bud. Now apply an eyeglass to the velvety-looking bark of this twig. Instead of the smooth surface, as appears to the naked eye, you will see hundreds of small hairs densely crowded together. Cut off a small piece of the bark and place it under the lens of a microscope; each hair appears almost as large as the twig from which it came. Some are composed of a single series of cells; others are branched, and others again have buds along their sides, preparing to make offshoots like unto their older congeners. Now these little appendages perform a specific and very important function in the vegetable economy. They not only absorb atmospheric gases, but they exhale gases and water; in short, they perform a function closely allied to, if not similar, to that of the leaves. It is not improbable that they give the first impulsion to the vernal flow of sap before the leaves are developed. But further investigation is required on this point. Every terminal bud represents an aggregation of undeveloped leaves round a common axis, and these leaf germs assume a definite position, differing in different kinds of trees. In some they are in circles, one above another; in some they alternate; in others they are opposite. As we go down from the terminal bud these variations are manifest in the arrangement of the leaves—opposite, alternate, verticillate, etc. This leads us to another practical conclusion: that in the development of the leaves there is an extension in the stem caused by an increased development of its cells, so that by the time that one circle of leaf buds is perfected it is removed by cell multiplication and growth from one to two inches away from the circle immediately above it. This arrangement may be seen in every tree, and it is the uniform method whereby extension in exogenous orders is accomplished.

At the close of the growing season, after the fall of the leaf, the new wood possesses the following peculiarities: it is a simple linear growth, with a single bud at the distal extremity; this is called the terminal bud. Along the course of its axis other buds may be seen, sometimes opposite to each other, sometimes alternating, and sometimes on a spiral line. There is no difference in structure or function between these and the other terminal bud; each one is destined to form growth exactly similar to the parent stem, or to be converted into a fruit bud. Fruit buds do not always appear on the first year's growth of wood; though on the peach and some other trees they are very common. There will always be seen at the junction of the last year's growth with that of the preceding year, a large number of fruit buds in close proximity. Below that point, where leaf buds occupied the new wood, other clusters of fruit buds are developed on short spurs.

I will now sum up the notable points in connection with these remarks on the physiology of plant life. All vegetable growth has its origin in a simple cell. All vegetable structures are combinations or aggregations of simple cells. The functions of life in plants are to absorb water and mineral substances held in solution by their roots, and to absorb carbonic acid and ammonia from the air by their leaves and bark. The carbonic acid is decomposed, the carbon uniting with the elements of water and ammonia to form the various vegetable secretions and to produce fruit, while the oxygen is set free, and returns to the atmosphere. The primary structure of plants being cells, the secondary tissues are hairs derived from the increase and aggregation of cells. Leaves are a tertiary product, derived from the hairs. Flowers are modified developments of leaves, and the development of the germ, which is part of the flower, produces fruit. And as a corollary, any cause which impairs or retards the full operation of these functions, not only impairs the ultimate processes of vegetable life in the production of fruit, but arrests development in growth, and, if continued, finally destroys the plant.

I have now completed a very long introduction to a very short lecture, and it remains only to apply the *argumentum ad insectæ*. Certain it is that the interest which is awakened on account of the actual damage that is annually inflicted on fruit and grain crops throughout the State by predacious insects is not premature. The hard-working farmer and the industrious horticulturist may well feel alarmed at the steady increase of those little animals which prey upon every grain-bearing plant and every fruit-yielding tree. Mr. Walsh, of Illinois, estimates the annual damage in the United States from these insects to be three hundred millions of dollars, and that Illinois alone suffers to the extent of twenty millions of dollars yearly; yet this is in a State where the Winter climate is so severe as to kill off a great many larvæ of insects; whereas, in California the climate is so genial that the functions of insect organism are never arrested. Hence, the evils just alluded to must necessarily be cumulative until the entire destruction of our orchards will be accomplished, unless, happily, some measures may be devised whereby the force of mind may overcome the force of instinct, or some compensatory action may be established by nature herself.

Go into an orchard or garden at any time of year and you may see small patches of snow-white, woolly material, about the axis of little branches and leaf-buds of trees. By carefully examining this matter you will observe that it is an exudation from a large number of soft insects, which are arranged with so much regularity, and are packed so closely together, that a miner would naturally conclude that they are located on very rich diggings. In common language, these insects are woolly aphides; they are one of the most destructive parasites of the orchard, on account of their wonderful powers of increase and the pertinacity with which they adhere to a tree. Authors state that this order of insects lay their eggs in the Fall, and die on the approach of Winter. Unfortunately, with us, there is no die to them. I have a colony three years old, and I have never yet seen among them death from natural causes. I am satisfied that the old stock of last year has survived the continuous previous weather of the beginning of Winter, and is now reproducing its kind. The females are viviparous as well as oviparous. I have counted as many as thirty young ones in a single female, all of which were far developed; and, besides these, a large number of undeveloped ova. It has been calculated that a single female will produce in one season two hundred thousand offspring; that they will produce a new brood every month, is an established fact; and that they will continue to propagate in California for eight months of the year, is a result of personal observation. On these premises, supposing there were no causes operating to check production, the offspring of a single female, at the expiration of eight months, would be counted by millions.

Up to recent times the belief was universal that all the various processes of multiplication in animals had one essential character in common; that in every species the successive generations were alike; and that this was always the result of sexual genesis; and corollorative, that each generation consisted of males and females, and from the fertilized germs they produce the next generation of males and females arises; that each fertilized germ gives rise to but one individual, and the product of development is always organized round a single, and not round several axes. But of the different kinds of homogenesis, or, as it is also called, gamogenesis—terms which signify genesis by marriage—there is a marked contrast between the oviparous and the viviparous. In the latter the development is considerably advanced, or almost completed, before final detachment takes place from the parent; in the former, or oviparous, the fertilized germ is detached from the parent, in the shape of ova, or eggs, before it has undergone any considerable development. This distinction, however, is not sharply defined, as there are transitions between the two processes. In ova-viviparous genesis there is an internal incubation, and the young in this case leave the parent before there is a perfect development of parental form, there being no placenta to nourish them within the body, as in all viviparous animals. Thus in the Virginia opossum the young, when first born, are very minute, blind, without hair, and shapeless. They are immediately transferred to the mother's pouch, which is an extension of skin over the breast, where they adhere to the mammary glands for fifty days, at the expiration of which time they are as large as a mouse, covered with hair, and have their eyes open.

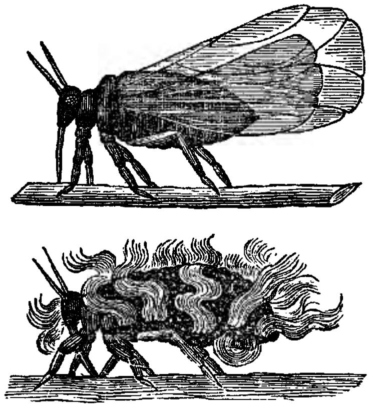
It is now proved that in plants and in numerous animals the successive generations are not alike; that from one generation there proceeds another, whose members differ more or less from their parents; and that these produce others either like themselves or like their parents, or like neither; but that eventually the original form reappears. Thus, instead of there being a constant recurrence of the same form, there is a cyclical recurrence thereof. This is called asexual or agamogenesis; or, literally, genesis without marriage. The continuous product of these is supposed to die out after an indefinite period, and the family is renewed only by an occasional sexual genesis, which follows the same course as its predecessors. Thus, from a single fertilized germ there arise seed or ova, giving rise to successive generations which are neither male nor female, each generation being derived from a budding process similar to that which occurs in some protozoa.

The hydra affords another illustration of this. From the parent animal there are developed small protuberances or buds, which gradually assume the shape and character of the parent, the stomach of which communicates with the bud. When the latter is perfected a constriction occurs at its base and a separation ensues, the bud floating off an independent individual to attach itself to some point where it passes through all the phases of life, and gives rise to other generations precisely as its parent did.

This mode of reproduction is also illustrated in the vegetable world. In every tree there is one main axis, the terminal bud of which never produces flowers or seed. But as it grows, it throws off lateral axis or branches, and these give rise to an innumerable crop of buds which are regarded as sexless. These buds have no independent vitality; they have no power of reproducing their kind. There is no development during the first year into a sexual form. So it may be for the second or third year. Ultimately there is produced from the secondary or tertiary axis buds which produce perfect flowers containing male and female organs, and from these are derived seed or germs from which reproduction of the plant is accomplished; thus we see a recurrence to the original type after several generations of asexual buds.*

Thus it is with the aphis. "Notwithstanding the great increase in the number of independent beings, not one of the viviparous larva becomes a complete organism; for so long as this method of multiplication is continuing, the type of the perfect insect is never evolved, and no true sexual characters make their appearance." Thus Professor Owen does not recognize a true ovarium in the aphis, and in his view its contents are not true ova in the full sense of the word. They are called by Huxley, *pseudo-ova*, and Siebold has modified the term before applied to this form of production, to *pseudo-partheno genesis*.

Respecting the number of generations of sexless individuals that the aphis may produce, before the reappearance of sexual ones, there is nothing determined. Bonnet obtained eleven generations in seven months, when the process was arrested by the approach of Winter. I am the fortunate proprietor of a colony which settled on an apple tree four years ago, which still retains a vigorous existence, and in which I have never yet detected a male insect.



This diagram represents male and female aphis, from a group which I discovered last Summer. On each segment of the abdomen there are four spinarets, from which exudes the fine, curling, snow-white wool, which is characteristic of the female insect. There is a physiological problem connected with this exudation which I am unable to solve.

The next diagram displays the contents of the false ovary, which is contained in a sexless individual, which I have not yet succeeded in isolating without laceration. From twenty to thirty larvæ may generally be seen, which are nearly ready to escape. Small sized ones, also, are detected without difficulty. The fluid in which they float is filled with granules, and a number of dark red vesicles, of various sizes, mingle with this fluid. Each of these vesicles contain a large number of granules. I believe that each granule represents the ovum of a future insect, and that cell-multiplication is continuous in each granule, so that, with the development of the larvæ, there is also developed within it another crop of vesicles containing the red granules, which are destined to go through the same course of fruition from generation to generation, without limit, except so far as conditions may exist, which are calculated to cut short the life of the parent; for, within the half developed larvæ may be seen the red tinge of the nuclei, and within the young aphis, after birth, may be seen the red vesicles, similiar to that from which its own existence was derived.

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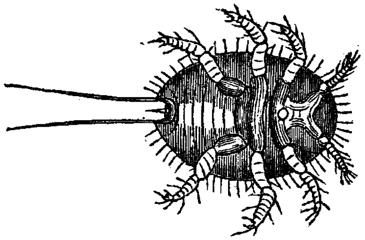
* Principles of Biology—Spencer, ch. vii.

Passing from the aphides, we will consider another insect, no less remarkable on account of its great fecundity and destructive habits. The scale insect, or aspidiotus, introduces itself to our attention by forming dense colonies on all kinds of fruit trees and shrubbery. Different species inhabit different kinds of trees. At the present time the apple and pear are its especial victims, and it is rapidly invading the almond, peach, and plum trees.

Take an eyeglass and walk into your garden. On the main trunk, perhaps—certainly on the small branches of almost any fruit tree—you will perceive a dingy roughness, which, on moderately close inspection, you will ascertain to be caused by numerous elevations, having very much the shape of an oyster or a mussel shell. See how closely they are located side by side; and, following the colony upward, they become more scattered and fewer in number, till at last they entirely disappear. Don't hurry, however, in expressing an opinion. Pull down the branch and examine the terminal bud with your eyeglass. Don't you see half a dozen or more little specks on the very edge of some of the envelopes of the bud? True; and these are the *enfans terrible* of this family of aspidiotus, or scale insects.



Now, then, with a knife blade take off one of these larger scales, turn it upside down, and take another look with your glass, and you will see some twelve, eighteen, or fifty eggs occupying the interior of the shell. Perchance this genial weather has already hatched out a portion of the brood; if so, the little animal will be cautiously prospecting around the edge of the domicile formed from the skeleton of its mother. It is only for a few days that they appear to enjoy the freedom of locomotion, as an adhesive secretion appears about the circumference of the body and attaches them to the bark, where they continue to grow, till, after three or four moultings, which occupy several months to accomplish, they appear as full-grown insects, and leisurely emerge from their carpax, and walk off to deposit their eggs on the new wood and fresh leaf buds of the tree. I do not think, however, they all emerge from beneath the scale. I speak with the privilege of changing my opinion should future observations fail to substantiate my present views. Most of the females remain within their covering and die there. The ova or eggs which they contain form the basis of next year's crop. During all last Summer I was unable to detect a single male insect in the neighborhood of the newly-hatched colony. The inference is that this insect, like the aphides, is subject to agamic reproduction.

A few months since, I directed your attention to the young insects which had located themselves on the bracts of the terminal bud. This figure will show you the position they occupy. About the time the bud begins to swell, so as to push the bracts outwards and separate them from their close envelopment of the inner leaves, the insect is hatched out; and, seemingly conscious that some hungry spider is on the alert for a tender morceau, it works its way beneath the scale and downwards to the base. Its objective point is between the yet undeveloped leaves and on the yet undeveloped nodes of the branch, where hard, woody tissue has not begun to be deposited. There they become fixed and readily absorb the juices of the plant.

This colonization takes place by dozens, or by scores, of individuals, at the same time the incubation is accomplished in the large settlements, located on the older wood of the tree. A moderate sized apple or pear tree will thus give birth to a population numbering all the way from ten thousand to one million of scale insects, which, of course, must receive their nourishment from the elaborated sap of the tree.

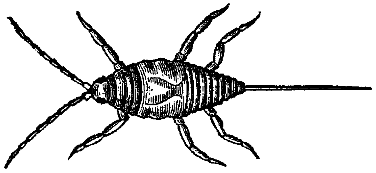
It is easy to perceive from this estimate, which is far within reasonable limits, how growth may be arrested, and an entire crop be subject to abortion, by the presence of this or any other parasitic insect. It is calculated that a human being requires some two thousand four hundred pounds of food during the course of a year to maintain a standard weight of one hundred and fifty pounds. A horse consumes about twelve thousand pounds, and an ox in the range of fifteen thousand pounds. Insects, from the rudimental nature of their digestive organs, and the consequent simplicity of the process of assimilation, do not require so much food in proportion to their size. I estimate the full grown scale insect to be five times the weight of the egg, and during the four months period allowed for active nutrition, during which time the successive changes from ova to perfect insect are completed, the insect consumes about twenty-five times its weight of food. I also estimate two thousand eggs are required to weigh one grain. From these data, the one million of insects inhabiting the tree will require over three thousand nine hundred pounds of nutriment, which must be taken directly from the sap which has been elaborated and prepared to enter into the construction of new leaves, wood, and fruit. Abstracting this important amount of pabulum from the tree, and where is the wonder that neither growth is effected nor fruit produced.

The theory conforms to the facts. Constant absorption of the juices within the foliar envelopes effectually prevents the development of young leaves, and the growth of internodes or space between one leaf and another; while the absorption of the insects located on the bark, and the complete destruction of the small hairs which cover the bark, arrests the essential processes of vegetable life, so far as those processes are dependent on the performance of the true function of the bark. A single glance at a tree that is attacked by aspidiotus or aphis will render this apparent.

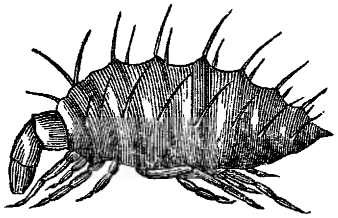
I purposely limit my remarks to a single species of eriosma or aphis, and to one of aspidiotus. There are thirty recognized species of the former and at least a dozen of the latter in the United States. Don't be alarmed at this number; it is a mere tithe of what you have to contend against. Ratzberg calculates that there are six hundred and fifty species of insects which are injurious to German forests. A history of the habits of one affords an insight into the history of all. In our investigations, we must learn to discriminate between those insects which are injurious to vegetation, and other kinds which prey upon those insects. Prominent among these latter are spiders and mites. You will invariably discover small spiders residing behind buds and under loose fragments of bark, in the neighborhood of scale insects. They are ever on the alert over fruit trees and shrubbery; among rose bushes and flowers this industrious family of insects exhibits its wonderful, instinctive genius in trapping its prey. No sooner does the vernal sun warm into developing activity the forces of vegetable life, than gossamer threads float through the air, which, intersecting each other, form the basis of a wonderful superstructure, which catches on the wing wandering insects that have started forth to propagate their species. You may count one hundred spiders on a very small shrub, each one of which will capture at least ten insects in a day, during the early part of the season, and in the aggregate you may estimate the vast work which they perform in modifying the increase of those species of predacious animals which are so small as to escape our ordinary observation. Yet notwithstanding the protective aid which is thus extended toward the preservation of our fruit trees and flower gardens, should a fair lady happen to observe a little spider on the rosebud that has been plucked for her especial pleasure, how often do we see her

> "Staring wide,
> With stony eyes, and heartless, hollow hue,
> Astonished stand, as one that had espy'd
> Infernal furies, with their chains unty'd."

There is another little insect belonging to the family acarina which requires especial notice. Step out to your favorite almond or peach tree, or to any other which you may be cultivating in the garden. Look carefully in the axes of the branches or twigs, and you may see a circumscribed space of a pink color. Now apply your eyeglass, and there will be detected a mass of beautiful, spherical, pink-colored eggs, packed together so closely that it is difficult to find any unoccupied space between them; indeed, occasionally, they may be seen in double layers. If you are ambitious to become a census marshal, practice a little on this group. On a linear inch you will find one hundred and sixty; on a square inch, full twenty-five thousand; and on the almond tree of four years' growth, which is in my garden, I have made a laborious estimate whereby the conclusion is reached that there are at least six million of these eggs scattered in groups over the trunk and branches. This was in September, when the mothers of the eggs were in their full prime and beauty. They were coursing round over the trunk, branches, and leaves, which caused the tree to assume quite a metropolitan appearance. They averaged one hundred to a leaf, and there were thirty thousand leaves on the tree; so that there was a living population, besides the six million eggs, of three million of acarina. My first impression was to denounce this immense horde of adventurers as being exceedingly antagonistic and injurious to white labor. But I concluded to hold on a while and observe the result of their squatter sovereignty; for the blossom buds of the present year were then in process of formation; moreover, their structure and habits were to be studied.



A microscopic examination exhibited the insect represented in this diagram. The body is oval in outline, having the segments very obscurely defined. On each segment is a row of spines or hairs, which are regularly disposed so as to form four longitudinal lines; the legs are also provided with these appendages. The neck is retractible. The animal passes through several moulting stages, and its cast-off epidermis adhering to the hairs on its back, gives it, with a casual observation, the appearance of wings. With the fall of the leaf, all the animals disappeared, leaving nothing but the unhatched eggs upon the tree.



I am almost prepared to believe that this animal is a valuable addition to our live stock. On the first of February, the almond tree on which they colonized was in full blossom; thus showing that it was not injuriously affected by their presence. Large numbers were detected on other trees, principally on the almond and peach; and in no instance where it was found in numbers have I been able to discover a solitary scale insect. Should the proposition be confirmed that this insect arrests the progress of the aspidiotus, it will prove to be a very important and happy discovery. It is now rapidly diffusing itself over all fruit trees. Whenever you may see a group of scale insects you will see a colony of the eggs of the acarina. I have discovered three species of them; the habits of all are essentially the same.

As regards other means for protecting our orchards and shrubbery, there is but little to be said. Various applications have been made to destroy the predacious insects which have been the principal subject of this lecture, without any established results. Asphaltum, tar, whale oil, soap, lime, soda, potash, tobacco, and other things, all have their advocates, yet no one can say that any particular recipe has proved a specific for the evil. The Pacific coast is doomed to be especially victimized by it, as our Winters are so mild that all kinds of insects enjoy the longest life that is compatible with their organization. But there are side questions involved in the case. Every organized structure becomes more exposed to diseased influences as it loses the conditions necessary to healthy growth and perfect nutrition. Thus a half-starved bird will be covered with vermin; an ill-fed pig will invariably have the mange; and even a human baby left dirty and uncombed will soon be as badly off as the worst-looking apple tree in your garden. And yet sensible men will dig little holes for fruit trees and stick them down without compost, and leave them just as they would a fence post, without subsequent care or cultivation, and then wonder why they don't make a vigorous growth and yield good fruit. Even in the best cultivated orchards in the State there are natural causes in operation which tend to arrest and prevent healthy vegetable nutrition, which are not properly guarded against. First among these are the westerly winds of Summer. This is so well understood that trees are crowded in gardens and orchards in order to break the force of the wind, and in so doing, as they increase in size, sunshine is excluded, and with this are partially shut out not merely solar heat and light, but the chemical rays, on the action of which depend the processes whereby the flavor and excellency of the fruit are perfected. With the decrease of light beneath the foliage the conditions are established which favor the growth of lichens on the trunk and branches; hence one cause of the rapid and general growth of the cetraria Californica, so common on fruit trees. You cannot pull off a specimen of this lichen without finding from ten to one hundred scale insects secreted about its roots. The points of attachment form centers of civilization, from which radiate a constant migration to every branch and twig. Here, then, is one important indication. Destroy the lichen and you remove a prominent cause which favors the development and increase of parasite insects.

On the trunk of a small pear tree, two inches in diameter and six feet long, I estimated the total number of living organisms which were domiciled beneath and among the lichens at not less than twenty thousand; and I venture the assertion, based on close observation, that the great majority of fruit orchards in Alameda County average not less than one hundred thousand of parasitic insects to each tree. Is it a cause for wonder, then, that trees are assuming an unhealthy and stunted appearance, and that fruit is becoming small and unmarketable when such vast hordes of suckers are sustaining themselves on the sap by absorbing it almost as fast as it is elaborated in the tissues of the plant? But how can these lichens be destroyed? I can tell you that much. All vegetable and animal substances are soluble in a strong solution of caustic potash, or of potassa and ammonia combined. By direct experiment I have ascertained that a solution formed of two gallons of water and one pound of ordinary caustic potash, and applied to the trunk and branches of a tree, will destroy the lichens and all the insects that are about them, without injuring the bark or young wood. In some cases it is probable that more than one application will be necessary. An admirable addition to this wash is an infusion of tobacco, which I have tried with marked success. The suggestion was made to me by a gentleman who assured me that it was infallible. I tried it at once, as no better evidence was needed of its toxicological properties than that derived from a tobacco chewer. I believe that this is the best prescription that can be recommended at the present time. Though the trunk of the tree will be dry during the middle and latter part of the day, the hygrometic properties of the potassa will cause a condensation of vapor over it during the night, and thus a continued action of the wash on fungoid and parasitic growths will be maintained. Mr. E. B. Martick, of Alameda, has successfully applied a mixture of crude petroleum and kerosene

for the destruction of the aphides. This application is well worthy of more extensive trial.

As regards the origin of these insects on the Pacific coast, there is some doubt. Many of our horticulturists consider them to be naturalized foreigners. Undoubtedly, they have been extensively diffused by ignorant or careless nurserymen. It would be a wise precaution, accompanied with good results, were every flower, shrub, and tree carefully examined, and excluded from the garden, in case any insects should be detected.

I am aware that I have made an unreasonable requisition on your patience, and if in the course of these remarks sufficient has been said to stimulate some minds to investigation into the processes of nature as exhibited in the microscopic world, I shall feel that a good work has been humbly performed. Though the progress of science has been unprecedented for the last few years, each new discovery, instead of restricting the field of pleasurable toil, opens new domains for research, new subjects for thought, wherein mind can bring itself into closer communion with nature and become the recipient of greater power and of higher endowments.

UNDERGROUND IRRIGATION.

BY E. F. AIKEN.

There has never been a period in the history of the world when so much attention has been given to the science of agriculture, in all its different departments, as the present. This fact forms one of the most conspicuous features of the present age, showing plainly that there is a growing conviction among all devoted to the pursuit of agriculture that the relations of science to practice ought to be better understood; that no one who expects to be successful in his agricultural operations can afford to be without some knowledge of the scientific principles of his particular branch of the business. We see this exemplified in the rapid increase of agricultural journals, and new works coming from the press which treat upon special subjects in a scientific manner. These publications are of vital importance to those who are engaged in the different branches of agriculture upon which they treat, and are eagerly sought after and studied by many who twenty-five years ago proclaimed book farming a humbug. There is also a great growth of inquiry in the minds of our agriculturists into the whys and wherefores of agricultural practices which habit and custom in times long gone by have made, seemingly, as unchangeable as the laws of the Medes and Persians. We see this strongly exemplified in the rapid increase of agricultural clubs throughout the country, in the eager desire of our farmers to come together and compare notes on similar subjects, to impart and illustrate the results of different experiments for the benefit of the whole. This indicates a desire for a higher and better system of management in the great principles of agriculture than that of our ancestors. The result of this exchange of ideas will be to establish new facts and suggest new improvements, and a problem that might under other circumstances take a lifetime to work out may be here demonstrated at a single meeting, and thereby the ways and means of others' prosperity become common property at trifling expense.

The time has come when the laws of nature, which govern and promote the growth of matter throughout the vegetable kingdom, should not be held as secrets by any one; and I hold that he who would refuse to impart to his neighbor any important discovery in the process of agriculture would, if he had the power, shut out the blessed sunlight and rains sent from Heaven, from every farm but his own.

The dull, plodding laborer, who has not a single thought above the number of hours he is obliged to labor for a day's work, is not the originator of new ideas and facts any more than the animal he drives. The present advanced condition of agriculture, as compared with the past, as a practical art, and the great improvements effected in it, are due to men of intelligent minds, of observation and skill, who have devoted their time and talents to it; and the success of any new industry must

greatly depend upon the intelligence, skill, and energy of those who undertake it.

Among the many important branches of agriculture which are exciting the attention of farmers generally, there is no one of such vital importance to the future prosperity of our State, and to every individual engaged in agricultural pursuits, as irrigation, or the operation of causing water to flow over our lands and pass through soils under cultivation, for the nourishment of growing crops. That water is the most important and indispensable agent in promoting the growth of vegetation throughout the world, no one will pretend to deny. It is also a well-established fact that its elements constitute the greater portion of all vegetables, fruits, and life-sustaining plants. The various materials concerned in vegetation, as food for plants, are all equally necessary for their growth and development; no one of them can be dispensed with, nor can they be replaced by anything else, or an increased amount of some other ingredient—all must be supplied together. In the absense of any one, the rest, however abundant, are wholly incapable of supporting vegetation, and a deficiency of any one naturally limits the effect of the remainder. In this dry climate we see these facts illustrated by the parched and stunted appearance of vegetation, for want of water during our Summer months; and the fact that irrigation, or watering the soil under growing crops, is of paramount importance to the successful agriculturist, no thoughtful man will deny. It may be safely laid down as an established principle, that in order to be successful in the cultivation of growing crops, and especially the different varieties of fruits, by the aid of irrigation, the cultivator must have, as far as it can be acquired, the control over the water by which the soil is affected.

While a reasonable quantity of water is a great and powerful instrument of vegetation when properly applied, it becomes a corresponding evil when beyond our control, especially if allowed to spread out over our lands, settling about trees and plants and becoming stagnant. The effect of stagnant water is destructive to vegetation. It reduces the temperature of the soil by excluding the air and the gases contained in the atmosphere, which are so beneficial to the growth of plants.

The productive influences of the overflowing of our rivers upon the alluvial lands we are all familiar with. These, however, are usually charged with a deposit very enriching to the soil. The land being inclined from the river, a natural drainage is effected, which leaves the soil in fine condition for the growing of a crop. These lands can always be depended upon to grow a fair crop without irrigation; while on the other hand, we have immense tracts of land which, in their present or natural state, though rich in all the elements necessary for growing any crop, are comparatively unproductive for want of water to moisten them. When these lands shall be irrigated during the six months that we are without rain—and I predict that the day is not far distant when they will be watered—we shall see our treeless plains covered with a growth of young forest trees, orchards of the choicest fruits of every clime, and fields green with growing crops the year round.

We have underlying these plains, at a depth of from nine to twelve feet, a mine richer than our mines of gold, and as exhaustless as the ocean, the treasures of which remain in store for our farmers, to be appropriated by them at will. By simply boring a hole into the earth, and inserting the ordinary lifting pump, attaching it to a windmill, or, what is better, one of Churchman's horse-powers, we tap a source of endless wealth. Many rich mines have been opened in the mountains of California which have poured out their harvests of gold broadcast to enrich the people of other States. There yet remains this mine underlying our plain lands, for the benefit of our own people. We have but to utilize it, and prove to the world that the productiveness of California is absolutely without a limit.

Now, I wish to call attention more particularly to the various modes to be adopted that will accomplish this end. We would not, at this time, discuss the most desirable way of irrigating the farm lands of New England, or the richer soils of the Middle States; our special interest is now turned toward the peculiar soils in these homes of our adoption in California.

I will not presume to be a teacher in the art of irrigation. It is a subject as new to me as to any one. But I will give my views for what they are worth, trusting that others who have more knowledge upon the subject than I have will do the same. The solution we wish to arrive at is how to accomplish the object desired in the easiest and most economical manner. It would be idle to attempt to fix any particular rule to govern the work of irrigation. We have only to consider here the general principles to govern us in prosecuting our work, consequent upon different circumstances, such as the nature of the soil, the distance to conduct the water, or the amount of land to be moistened. Under all circumstances, we should avoid surface irrigation when it can be made convenient and practicable to conduct the water under the surface in pipes.

I am inclined to think that many have entertained erroneous opinions concerning the amount of water needed in irrigating trees and plants, and the size of pipe necessary to accomplish the purpose. The quantity of water necessary for this purpose is very small if properly managed. Much of the pipe used in draining land in England, where the art of drainage is carried to perfection, is only of one inch bore, and I believe that pipe with a bore of that size will have capacity enough to irrigate our lands if properly laid. In support of my argument, and as an illustration, I make the following quotation from a celebrated author on drainage in England:

"It was on the ninth of November that I inspected the drainage of Hammond's farm, recording the facts that after a rain of about twelve hours duration on the seventh, I found the drains on the ninth, in a nine-acre piece, three feet deep, just dribbling, and those in a hop-ground adjoining, four feet deep, exhausted, Hammond having observed previously to my arrival that the greatest stream at the outfall of each drain amounted to about the half bore of the inch pipe. The rain gauge informs us that forty-eight one hundredths of an inch in depth of rain fell upon each square foot of surface in the observed nine of twelve hours. This quantity is equivalent to sixty-nine and one tenth cubic inches, or two and a half pounds, which, divided by twelve hours, gives little more than two tenths of a pound per square foot of surface per hour for the weight of the rain. The drains were twenty-four feet asunder, and each pipe a foot in length, so that each pipe had to receive the water falling upon twenty-four square feet of surface, equal to sixty pounds, or six gallons; and as the time which this quantity occupied in descending through the soil and disappearing was about forty-eight hours, it results that one and one quarter pounds, or one pint per hour, entered the drain through the crevice existing between each pair of pipes. The weight of rain per acre which fell during the twelve hours amounted to one hundred and eight thousand and nine hundred pounds, or forty-eight and six tenths tons, which, on the whole piece of nine acres, is equal to four hundred and thirty-seven and four tenths tons; and each drain discharged nineteen tons, equal to about four tenths of a ton per hour on the mean of forty-eight hours; but when the flow was the greatest, I find that each drain must have discharged at the rate of five times this quantity per hour, which affords proof of the faculty of the pipes to receive and carry off a fall of rain equal to two and one half inches in twelve hours—a rainfall which is quite unknown in this climate."

We may, therefore, consider the fact of inch-bore pipes for agriculture drainage to be fully demonstrated; and does it not follow that the same sized pipe will answer the purpose of returning the same amount of water to the soil? If so, inch-bore pipes laid at twelve feet asunder will be more than sufficient for ordinary purposes. I would, however, recommend that the main pipe or feeder be larger in all cases, and increased in size in proportion to the number of laterals to be supplied. There are many reasons why we should adopt the plan of underground irrigation in preference to conducting water over the surface in furrows or trenches. Surface watering encourages the roots of trees and all plants to remain near the surface; it renders the surface compact and impervious to the light, heat, and air necessary for the successful growth of plants, unless the soil is immediately stirred with the cultivator. Then new furrows must be made to repeat the operation. The whole operation of surface irrigation requires the constant attention of the operator, or accidents will happen. It also requires more than four times the quantity of water that underground irrigation does. Objections too numerous to mention might be presented against surface irrigation, which, in the main, are entirely overcome by the adoption of underground irrigation; and I believe underground irrigation to be the cheapest and most economical method of conveying water through the soil for the purpose of irrigating small tracts of land for orchards, nurseries, hop yards, strawberry grounds, etc. In my opinion, by the adoption of this method of irrigating the strawberry, the nature of the plant can be materially changed and the season of bearing lengthened. The roots of the plants will run down, seeking the water coming from below, and will not be so much affected by the scorching rays of the sun.

The kind and style of pipe to be used in irrigation requires our serious consideration, for upon this point rests our success. We must have complete control over the water used, to accomplish our purpose. The old style of pipe for drainage will not do, for the reason that you have not this control. The water will issue freely from the orifices near the supply, while at a distance very little will reach them, and consequently the ground will be unevenly irrigated. To avoid this difficulty, I have invented a plan for the arrangement of pipes and the conducting of water, which gives complete control over the water, for which I have applied for a patent, and now offer rights to use it on such terms as place it within the reach of all. The following description will convey a correct idea of the same:

Take two by three-inch redwood scantling; have a half-round groove plowed in it by machinery, one inch deep; after seasoning the lumber, give it a coating of gas tar, and it is ready to put together. Take two pieces and nail them together, with one foot projecting at each end, to break the joints when laid. We now have a pipe of two-inch bore, sixteen or eighteen feet long, as the case may be, ready for laying down, made of a material almost indestructible, that will last for years. The cost of the lumber, plowed ready for nailing together, is twenty-seven dollars and fifty cents per thousand running feet, which includes the two pieces necessary for making the pipe. The coating with tar, nailing, and laying down any farmer can do himself. Before laying the pipe, small holes, the size of a pipestem, should be bored through the sides of the pipe at intervals of twelve inches, alternately, just above the center; or the upper half of the tube may be sawed transversely so as to produce orifices through which the water may escape. This may be the cheapest mode of piercing the tube.

The lower part of the pipe being whole or tight, no water can escape until the pipes are half full, if laid level. The pressure of the water being equal, it will then be forced out through the cuts or holes in the upper half in equal quantities at all points. This model is made to represent a scale of one half-inch to the foot. The large box (No. 1) is the supply receiver, to be placed under a pump or hydrant, receiving the conducting pipe at A, which conducts the water in any direction in a straight line. Where the direction is to be changed, the pipe enters a small box well (No. 2), which receives similar pipe running in other directions.

If the ground is inclining, and we wish to extend our pipes, and, at the same time, retain the same depth in the ground, we are forced to change our level. This is accomplished as represented by box well No. 3. The pipes enter this on the same level, letting the water out on the other side into pipes on a lower level.

The water in the pipes is controlled and directed by means of valves covering the ends of the pipes which carry the water from the wells. The pressure of water flowing into these wells from the supply pipe will keep the valves closed. They can be opened by the operator by means of a rod attached to them, allowing the whole volume of water to flow in either direction.

No. 4 represents a box well for conducting water from the upper to a lower terrace, on terraced grounds. The pipe enters at C, on the upper terrace, letting the water into the pipes laid on the lower terrace at B, controlled by valves reached by opening doors, F and G.

The wells are made deeper than the pipes are laid, to receive and hold any sediment that may be in the water, which may be removed when necessary.

Among the many advantages claimed for the above arrangement of pipes over any other known to the inventor, we will mention the following:

First—And one of the most important—we have complete control over the water; can conduct it in the pipes long distances, regardless of the nature or condition of the soil, without waste; guide it in any direction, and force it from the pipes in large or small quantities, at the pleasure of the operator.

Second—It is claimed to be cheaper in the long run than the ordinary method of surface irrigation, as the pipes once laid in the ground will last a lifetime.

Third—There is a saving of at least eighty per cent of water, and as much in labor, over surface irrigation. There is but little loss by evaporation, and plants will not require watering as often when they receive the water from below. It does not require a person to watch the operation for fear of accidents, so frequent in surface irrigating.

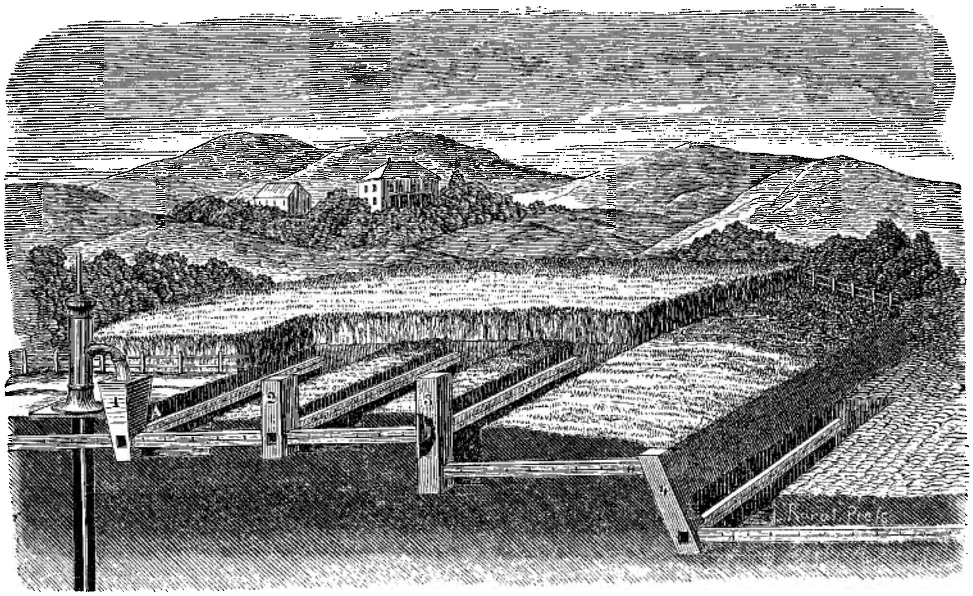
Fourth—The water can be applied to the soil at any time of day or night, without fear of any scalding effect of the sun upon the soil or plants. The surface, after watering, remains in fine condition for the light and heat, and the gases of the atmosphere to penetrate to the roots of plants. These elements, so indispensable to the rapid and healthy growth of plants, are to a great extent shut out by the ordinary method of surface irrigation.

Fifth—By having a reservoir in connection with these pipes, manure in a liquid state may be applied directly to the roots of plants, carrying with it all the ammoniacal gases and fertilizing properties contained in it, which by any other mode of application would lose a great percentage by evaporation.

Sixth—If this system of irrigating could be generally adopted in the yards and gardens of our cities, it would no doubt be beneficial in a sanitary point of view, lessening the tendency to malaria and its consequent diseases, and to a great extent prevent the breeding of mosquitoes, both of which are assisted by, if not directly attributable to, surface irrigation.

Seventh—These pipes, as arranged for irrigating the soil, will also answer the purpose of drainage—draining the soil above the level of the pipes of any excess of water during the Winter season. By simply removing the plugs in the ends of the pipes we reverse this operation, and they become drainage pipes.

As the pipes become exhausted of irrigating water and the soil becomes saturated by rain, the drainage water will enter them through the same orifices where it is forced out by the irrigating process. As it flows out at the ends of the pipes from which the plugs have been removed, it can be conducted into lower drains or sewers, leaving the soil above the level of the pipes in fine condition for the healthy growth of vegetation.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Rural Pictures

STATISTICAL TABLES FOR 1871--72.

TABLE OF STATISTICS FOR 1871-72.

Industrial and other statistical information for the year 1872, as reported to the Surveyor General by the several County Assessors, embracing the entire State.

COUNTIES.	ASSESSED VALUE OF PROPERTY.				Estimated total population........	Registered voters........	Poll tax collected......	Miles of railroad........
	Real estate	Improvements..	Personal property...........	Total valuation.				
Alameda	$27,486,940	$5,498,020	$6,748,655	$39,733,615	35,000	6,474	$8,086	92¾
Alpine..........................	161,700	121,845	215,863	499,408	800	240	202	....
Amador	1,839,348	700,055	3,016,019	5,555,472	11,360	3,140	3,450	....
Butte............................	3,483,369	1,121,150	2,565,567	7,170,086	12,500	3,931	7,124	58
Calaveras	234,256	497,748	778,149	1,510,153	9,986	3,150	1,425	⅔
Colusa...........................	5,595,019	....	2,832,994	8,428,013	8,000	2,700	1,000	....
Contra Costa.................	4,905,703	824,310	1,820,208	7,550,221	10,000	2,650	3,000	1½
Del Norte......................	170,467	185,615	330,643	686,725	2,500	537	1,277	4
El Dorado......................	414,327	911,088	1,077,038	2,402,453	9,600	4,624	2,725	18¾
Fresno	3,139,934	267,378	1,849,849	5,257,161	4,250	800	732	31½
Humboldt......................	1,803,871	778,245	2,218,476	4,800,592	11,500	2,744	2,900	2
Inyo	298,734	208,048	1,023,739	1,430,521	2,100	700	400	....
Kern	1,088,432	234,282	1,443,293	2,766,007	4,000	900	281	....
Klamath........................	243,344	72,979	292,583	608,906	3,300	410	699	....
Lake..............................	890,634	313,087	587,649	1,791,370	2,969	1,141	1,185	....
Lassen	125,488	149,962	662,606	938,056	1,500	418	323	....
Los Angeles..................	5,264,888	1,779,596	3,510,108	10,554,592	17,400	4,530	3,600	20½
Marin	7,976,487	1,260,950	2,221,004	11,458,441	....	....	....	3½
Mariposa.......................	410,755	397,299	672,879	1,480,933	4,560	1,300	1,366	....
Mendocino.....................	1,985,184	749,655	2,573,884	5,308,723	11,000	3,000	3,400	....
Merced	4,918,243	422,860	1,889,634	7,230,737	3,500	1,066	380	31½
Mono.............................	79,615	99,320	283,360	362,295	550	453	236	....
Monterey	8,266,989	830,601	3,246,185	12,343,775	10,887	2,596	2,712	18
Napa.............................	4,264,775	1,794,000	2,176,812	8,235,587	11,200	2,297	1,318	41
Nevada	3,768,045	1,581,531	2,691,892	8,041,468	19,134	6,100	10,780	30¼
Placer...........................	4,514,477	†1,936,910	....	6,451,387	14,000	3,312	3,145	112¾
Plumas	165,852	237,844	720,175	1,123,871	7,000	1,280	1,265	....
Sacramento...................	8,672,094	7,280,395	12,939,787	28,892,276	35,000	7,500	11,400	63
San Bernardino.............	672,396	256,336	517,549	1,446,281	7,000	1,583	383	....
San Diego.....................	1,582,684	228,580	807,664	2,618,928	7,359	1,998	450	....
San Francisco	*187,289,301	....	110,595,941	297,885,242	175,000	....	35,000	....
San Joaquin..................	11,177,342	4,018,185	5,327,459	20,522,986	25,000	5,250	4,760	94½
San Luis Obispo............	1,739,317	249,145	1,565,650	3,554,112	6,000	2,000	600	....
San Mateo.....................	7,864,165	904,680	1,251,890	10,020,735	7,370	2,000	1,326	25
Santa Barbara...............	3,404,592	651,809	1,943,831	6,000,232	8,400	1,860	....	....
Santa Clara	18,132,250	5,457,222	6,431,894	30,021,366	27,000	5,510	24,320	70
Santa Cruz	3,751,688	1,237,899	2,232,125	7,221,712	9,000	2,257	4,266	2¼
Shasta...........................	323,303	228,003	1,001,487	1,552,793	6,000	1,630	2,350	....
Sierra............................	861,875	643,640	818,344	2,323,859	5,800	2,200	3,600	....
Siskiyou	744,811	465,947	2,479,015	3,689,773	8,000	2,131	1,951	....
Solano...........................	7,241,720	1,697,757	2,729,260	11,668,737	16,571	5,062	4,000	45½
Sonoma.........................	10,763,799	3,085,264	6,038,287	19,887,350	25,000	....	4,119	62
Stanislaus	4,173,450	590,654	2,141,941	6,906,045	6,500	2,000	610	33
Sutter	3,006,101	455,115	1,230,315	4,691,531	6,550	1,307	....	34
Tehama	1,646,967	292,805	1,829,095	3,768,867	6,500	1,635	1,100	47

TABLE OF STATISTICS—Continued.

COUNTIES.	ASSESSED VALUE OF PROPERTY. Real estate	Improvements	Personal property	Total valuation.	Estimated total population	Registered voters	Poll tax collected	Miles of Railroad
Trinity	$165,842	$124,307	$420,309	$710,458	3,275	860	$1,060	....
Tulare	1,113,566	397,241	1,639,384	3 150,190	7,400	1,384	1,680	40
Tuolumne	421,320	316,795	696,035	1,434,150	8,000	2,800	1,400	....
Yolo	5,161,728	945,163	2,535,894	8,642,785	11,000	4,428	3,476	32
Yuba	1,567,450	1,597,605	2,450,580	5,615,635	11,500	3,795	3,671	26⅝
Totals	$374,774,636	$54,098,925	$217,072,990	$645,946,561	657,821	119,683	$174,533	1,042⅛

* Real estate with improvements. † Improvements and personal property.

TABLE OF STATISTICS—Continued.

COUNTIES.	Acres of land inclosed in 1871	Acres of land cultivated in 1871	WHEAT. Acres	WHEAT. Bushels	BARLEY. Acres	BARLEY. Bushels	Acres of land cultivated in 1872	Acres of wheat sown in 1872	Acres of barley sown in 1872
Alameda	94,790	124,546	70,408	429,543	26,667	204,580	115,408	67,837	17,965
Alpine	20,000	2,050	40	800	100	2,600	2,050	50	100
Amador	61,570	18,090	1,740	33,640	2,190	43,306	17,170	2,130	3,150
Butte	171,061	83,606	46,636	932,720	16,041	449,138	83,606	46,636	16,041
Calaveras	28,742	10,656	683	7,245	1,965	34,536	11,200	730	2,040
Colusa	100,000	80,000	....	....	....	....	125,000	100,000	20,000
Contra Costa	125,940	69,790	51,140	701,790	15,400	310,030	70,820	51,900	16,100
Del Norte	10,650	2,135	276	5,960	304	17,200	1,448	220	280
El Dorado	41,252	10,447	747	5,224	321	3,089	10,547	9,424	920
Fresno	80,423	23,716	6,843	34,119	5,415	45,809	20,000	10,540	9,736
Humboldt	47,684	14,240	1,265	31,875	650	2,600	15,160	1,510	582
Inyo	....	4,500	750	22,500	975	29,250	6,443	1,080	2,520
Kern	18,249	13,595	2,409	500	3,275	800	18,000	5,000	4,000
Klamath	....	....	....	....	....	....	....	....	....
Lake	29,911	7,508	3,868	85,612	2,379	64,060	7,386	3,800	2,620
Lassen	24,855	4,682	1,191	18,255	2,066	34,313	5,100	1,520	2,100
Los Angeles	45,300	44,800	500	10,500	11,500	339,200	49,000	500	11,800
Marin	270,000	33,000	2,200	44,000	6,223	199,136	65,000	2,200	6,223
Mariposa	26,100	6,900	950	7,000	2,500	6,500	6,900	950	2,500
Mendocino	133,000	40,000	6,000	90,000	2,200	88,000	42,000	7,000	2,000

TABLE OF STATISTICS—Continued.

COUNTIES.	Acres of land inclosed in 1871	Acres of land cultivated in 1871	WHEAT.		BARLEY.		Acres of land cultivated in 1872	Acres of wheat sown in 1872	Acres of barley sown in 1872
			Acres	Bushels	Acres	Bushels			
Merced	250,000	200,000	150,000	750,000	50,000	100,000	300,000	200,000	75,000
Mono	5,960	695	219	2,735	286	4,765	772	310	290
Monterey	237,890	117,075	54,210	1,082,200	48,378	809,900	233,100	155,700	65,200
Napa	107,650	40,620	32,530	585,540	3,725	98,790	48,000	31,500	3,950
Nevada	60,000	10,000	....	....	....	....	10,000	....	....
Placer	51,308	31,673	14,473	191,568	4,468	73,029	43,564	16,040	4,390
Plumas	55,800	9,250	900	9,000	1,200	15,000	11,000	1,080	1,440
Sacramento	288,370	68,169	11,797	198,603	26,653	419,954	62,016	8,506	25,928
San Bernardino	21,776	5,543	1,115	13,557	1,850	20,055	8,989	2,417	3,757
San Diego	8,490	6,094	1,713	10,244	2,700	16,916	12,640	1,804	7,246
San Francisco	....	....	....	....	....	....	....	....	....
San Joaquin	275,000	120,000	80,000	640,000	20,000	225,000	225,000	186,125	29,375
San Luis Obispo	100,000	15,000	2,000	30,000	10,000	300,000	20,000	3,000	12,000
San Mateo	150,000	100,000	25,000	250,000	27,000	810,000	87,000	35,000	25,000
Santa Barbara	26,720	25,050	970	22,465	10,210	92,560	56,700	9,072	28,600
Santa Clara	499,406	194,359	120,936	1,255,287	17,529	113,931	164,090	142,573	12,444
Santa Cruz	68,370	16,279	6,222	467,084	2,722	118,151	18,496	8,189	4,232
Shasta	56,048	30,320	7,728	101,712	6,952	145,396	31,350	7,672	7,640
Sierra	56,528	2,980	1,120	15,680	900	19,180	3,200	1,200	1,060
Siskiyou	74,732	30,017	7,992	142,926	1,972	51,442	30,000	7,992	1,200
Solano	114,081	65,737	60,448	228,296	14,825	49,480	475,647	340,191	10,958
Sonoma	500,000	312,800	165,200	2,760,350	15,340	324,989	208,937	102,352	14,896
Stanislaus	80,000	350,000	290,000	900,000	60,000	225,000	400,000	340,000	50,000
Sutter	223,784	....	92,267	482,335	20,275	101,375	120,830	60,060	12,120
Tehama	246,744	46,920	23,606	542,938	11,000	275,000	120,000	60,000	45,000
Trinity	10,440	6,544	1,280	12,770	125	2,550	6,530	1,175	90
Tulare	49,282	22,395	5,286	60,542	11,523	122,429	32,882	11,559	17,848
Tuolumne	141,986	40,000	5,000	80,000	1,000	10,000	40,000	5,000	1,000
Yolo	71,593	144,441	55,335	707,525	11,315	180,410	164,202	69,987	12,240
Yuba	110,000	52,000	11,000	138,600	12,375	210,800	46,000	13,240	8,900
Totals	5,261,485	2,658,222	1,425,993	13,843,240	494,494	6,801,249	3,653,183	2,134,771	602,481

TABLE OF STATISTICS—Continued.

There are in the State, according to additional returns in the Surveyor General's office:

Number of grist mills run by steam power, with 199 run of stone	69
Number of grist mills run by water power, with 138 run of stone	72
Number of barrels of flour produced	1,041,194
Number of bushels of corn ground	173,811
Number of steam sawmills	198
Number of water sawmills	124
Number of feet of lumber produced	326,891,867
Number of shingles produced	190,300,530
Number of quartz mills	311
Number of tons of rock crushed	572,913
Number of mining ditches, of an aggregate length of 5,618 miles, and running 214,065 inches of water per day	772
Number of irrigating ditches, irrigating 110,090 acres	546
Number of sheep	3,158,193
Number of Cashmere and Angora goats	15,373
Number of hogs	219,057
Number of hives of bees	23,268
Number of horses	237,280
Number of mules	24,176
Number of asses	1,356
Number of cows	260,145
Number of calves	200,766
Number of beef cattle	218,456
Number of oxen	7,259
Number of prune trees	18,925
Number of mulberry trees	553,032
Number of almond trees	484,864
Number of walnut trees	129,615
Number of grape vines	30,889,366
Number of gallons of wine made	4,614,879
Number of gallons of brandy made	147,135
Number of breweries	137
Number of gallons of malt liquor made	3,770,467
Number of apple trees	1,370,971
Number of peach trees	882,338
Number of pear trees	297,841
Number of plum trees	249,464
Number of cherry trees	144,120
Number of nectarine trees	43,776
Number of quince trees	36,940
Number of apricot trees	92,326
Number of fig trees	52,550
Number of lemon trees	8,973
Number of orange trees	50,156

TABLE OF STATISTICS—Concluded.

Number of olive trees	13,282
Number of pounds of silk cocoons produced	106,168
Number of pounds of butter made	7,734,469
Number of pounds of cheese made	2,741,198
Number of pounds of wool clipped	10,481,042
Number of pounds of honey produced	403,922
Number of bushels of onions raised	139,996
Number of tons of hay	411,420
Number of pounds of flax	2,052,200
Number of pounds of hops	445,036
Number of pounds of tobacco	48,050
Number of pounds of peanuts	435,648
Number of bushels of beans	138,438
Number of pounds of castor beans	642,800
Number of tons of potatoes	1,067,647
Number of tons of sweet potatoes	5,268
Number of bushels of oats	2,164,047
Number of bushels of rye	35,955
Number of bushels of corn	1,248,372
Number of bushels of buckwheat	7,595
Number of bushels of peas	91,144

FINANCIAL CONDITION

Of the several counties, and value of real and personal property in same, as returned to the State Controller's office.

COUNTIES.	Funded Debt.	Floating Debt.	Value of County Property.	Cash in County Treasury.
Alameda	$69,000	$84,221 74	$52,000	$20,329 12
Alpine		23,514 88	3,000	2,465 17
Amador		208,884 58	30,000	9,157 94
Butte				
Calaveras				
Colusa	17,500	86,000 00	30,000	37,389 04
Contra Costa				
Del Norte				
El Dorado				
Fresno		7,811 93	26,000	59,076 88
Humboldt		17,384 28	15,000	9,716 12
Inyo		30,525 02		8,156 71
Kern	9,000	33,307 33	7,900	3,738 61
Klamath				
Lake				
Lassen	28,875		8,000	13,107 86
Los Angeles	245,600	10,000 00	40,000	16,362 12
Marin	110,000	47,190 91	46,000	46,140 54
Mariposa		70,258 62	20,200	262 22
Mendocino	79,263	30,466 36	50,000	22,989 71
Merced		20,222 42	10,600	32,895 03
Mono		11,604 00	5,300	3,325 27
Monterey				
Napa	228,000	113,355 00	240,000	18,552 72
Nevada		96,649 28	81,000	3,907 78
Placer	16,000		22,013	13,730 67
Plumas		84,073 31	17,600	14,482 90
Sacramento	775,100	16,180 00	301,800	53,295 46
San Bernardino				
San Diego				
San Francisco	3,461,000		6,230,000	316,776 22
San Joaquin	371,902	13,500 00	196,000	80,837 64
San Luis Obispo				
San Mateo	56,000	11,000 00	6,000	41,096 29
Santa Barbara				
Santa Clara				
Santa Cruz				
Shasta		59,414 45	16,600	10,000 85
Sierra		40,606 37	6,000	5,572 79
Siskiyou	55,600		11,250	11,541 88
Solano	165,000	163,304 00	25,700	43,111 30
Sonoma				
Stanislaus				
Sutter				
Tehama				
Trinity				
Tulare				
Tuolumne	13,500	39,723 83	28,000	10,832 22
Yolo		120,598 53	40,000	15,191 63
Yuba				

FINANCIAL CONDITION OF THE SEVERAL COUNTIES—Continued.

COUNTIES.	Value of Real Estate.	Value of Personal Property.	Total value of Property.	Rate of Taxation.	Amount of Taxes.
Alameda	$24,738,246	$6,748,655	$37,326,596	1.00	$329,633 72
Alpine	283,545	214,609	498,154	3.00	14,944 62
Amador	2,165,720	1,021,030	3,186,750	2.35	77,531 16
Butte	4,165,337	3,687,266	7,852,603	....	172,757 12
Calaveras	730,714	780,175	1,510,889	....	54,710 74
Colusa	5,660,473	2,885,759	8,546,232	1.60	136,739 72
Contra Costa	5,774,043	1,849,227	7,623,270	....	114,349 49
Del Norte	361,232	330,473	691,705	....	14,094 85
El Dorado	1,334,022	1,106,665	2,440,687	....	63,457 80
Fresno	3,221,677	1,927,378	5,149,055	1.25	69,545 54
Humboldt	2,585,131	2,218,576	4,803,707	1.97	94,633 02
Inyo	503,773	941,959	1,445,732	....	36,143 30
Kern	1,305,994	1,441,216	2,747,211	....	48,625 64
Klamath	333,640	298,169	631,809	....	16,742 94
Lake	....	....	....	....	....
Lassen	284,875	654,193	932,086	2.00	18,781 36
Los Angeles	7,044,484	3,510,108	10,554,592	....	200,537 25
Marin	7,244,677	2,173,491	9,418,168	1.12	105,483 49
Mariposa	808,054	696,101	1,504,155	2.80	42,116 34
Mendocino	2,826,556	2,655,622	5,482,178	1.62	88,811 28
Merced	5,331,103	1,889,634	7,230,737	1.17	84,599 54
Mono	178,935	283,470	462,405	2.40	11,097 72
Monterey	7,899,164	3,354,040	11,253,204	....	131,662 50
Napa	6,058,320	2,178,827	8,237,147	1.80	158,003 67
Nevada	5,362,201	2,705,823	8,068,024	1.60	129,088 38
Placer	....	....	....	....	....
Plumas	1,268,310	679,094	1,989,429	2.50	49,737 10
Sacramento	15,964,990	12,987,370	28,952,360	1.28	341,637 84
San Bernardino	....	....	....	....	....
San Diego	....	....	....	....	....
San Francisco	180,571,640	108,011,616	288,583,256	1.50	4,328,748 85
San Joaquin	15,192,477	5,327,559	20,520,036	1.05	248,743 29
San Luis Obispo	2,681,385	1,658,723	4,340,108	....	75,950 33
San Mateo	9,168,782	1,366,542	10,535,324	1.20	126,423 88
Santa Barbara	4,947,407	2,147,586	7,094,993	....	106,423 45
Santa Clara	24,016,350	7,306,073	31,322,426	....	344,139 58
Santa Cruz	3,774,648	2,137,503	7,245,052	1.37	102,991 47
Shasta	601,870	1,027,246	1,629,116	2.25	36,652 68
Sierra	1,483,675	840,184	2,323,859	2.30	55,414 13
Siskiyou	1,415,503	2,535,762	3,951,265	1.60	63,218 80
Solano	8,890,629	2,800,462	11,691,091	1.60	200,202 09
Sonoma	14,070,538	6,236,024	20,306,562	....	263,985 31
Stanislaus	4,947,407	2,147,586	7,094,993	....	106,423 45
Sutter	3,100,839	1,231,648	4,857,103	....	72,854 96
Tehama	....	....	....	....	....
Trinity	308,523	419,790	728,313	....	18,936 14
Tulare	....	....	....	....	....
Tuolumne	726,660	730,315	1,456,975	3.70	53,908 07
Yolo	5,337,098	2,398,296	8,739,465	1.50	131,092 14
Yuba	3,165,115	2,450,360	5,615,475	....	107,118 16

RECLAMATION AND IRRIGATION.

BY J. ROSS BROWNE.

Owing to the peculiarities of our climate, the farming interests of this State are subject to contingencies of droughts and floods, which, under a judicious application of labor and capital, could be turned into positive sources of wealth. The purpose of the present article is to indicate in what way an equitable distribution might be made of the Winter rains, so that in seasons of drought we would have all the water we require, and in seasons of flood, ample protection against overflow.

It will not be questioned that agriculture is the most important interest of California. Very few who came here in eighteen hundred and forty-nine, and indeed many years later, anticipated the change which has taken place in this respect. The opinion that mining would be the leading interest prevailed long after it became known that agriculture was a prominent source of wealth. The history of all mining countries shows that agriculture and manufactures become ultimately the most permanent sources of prosperity. Baron Humboldt, whose enlarged experience of various countries, profound learning, and careful habits of research, entitle his opinion to universal weight, says, that "the influence of mining on the progressive cultivation of the country, is more durable than the mines are themselves, and that the produce of the earth derived from agriculture is the sole basis of permanent opulence." Nor is this a modern axiom, derived from the experience of Christian nations; for, according to Sir John Francis Davis, it is a principle laid down in the Book of Mencius, that "the ground is the original source of all wealth, and the principal subject of taxation. Agriculture, therefore, is called the *root*, and manufactures and trade the *branches*, and hence the higher honor and attentions bestowed on the former."

In new countries, as in California, where the means of access are in the first instance limited, population is generally attracted by the discovery of sources of wealth offering immediate and extraordinary rewards. Gold was the magnet which brought to our shores the pioneers of eighteen hundred and forty-eight and forty-nine. But wherever land is suitable for cultivation, experience shows that even the fascinating pursuit of mining must eventually yield the precedence to agriculture.

ENCOURAGEMENT OF IMMIGRATION.

The capacity of this State to sustain a large number of inhabitants is undoubted; yet, with all our advantages, and starting with a sudden influx of intelligent and energetic people from all parts of the world, we now, after twenty-two years experience, find ourselves with an aggregate population of less than four to the square mile, while the remaining States and Territories of the Pacific slope contain an aggregate of less than one to the square mile.

The expectation that population would flow into the country the moment the Central Pacific Railroad was completed was unreasonable. It requires time, and knowledge of the country and its resources, to bring about so important a change. During the past few years much of this knowledge has been obtained, and it now only remains to offer the requisite facilities for intercommunication and settlement to fill up the country. Much may be expected in the future, if we adopt an intelligent course of action. An industrious and energetic people, such as we desire, will settle where they can obtain at cheap rates lands suitable for cultivation, and where they can be within reach of the refining influences of churches, schools, and public libraries. Unless we have improved systems of agriculture and the usual accessories of intercourse in a civilized country, these advantages cannot exist. With all our resources—with the richest mineral and agricultural lands in the world—with extraordinary natural advantages for manufactures—the desideratum felt by every intelligent citizen of California is an increase of population. For twenty years this has been a subject of newspaper discussion; yet up to this time there has been no organized effort, on an adequate scale, to meet the requirements of the situation.

The resources of a country are intrinsically valuable in proportion to the facilities existing for their development. Without abundant labor the natural wealth of the State is of no avail. This is a question of general as well as of local interest. It has been a prominent subject of discussion for years past; and various measures have been submitted to the Legislature for the purpose of securing State aid to encourage immigration. None will deny that the growth of California in population and wealth during the past ten or fifteen years has been slow compared with that of the new States east of the Rocky Mountains. A reason for this may be found in the general apathy which has prevailed until recently on the subject of local improvements.

The total area of the eight States and Territories forming what is called the Pacific slope, is nine hundred and three thousand and nineteen square miles. The total population is now about eight hundred and fifty thousand—less than one to the square mile. The New England States, omitting fractions, have forty-nine; the Middle States, sixty-nine; the Southern Coast States, fifteen; the Western Central States, twenty; the Northwestern States, twenty-two; and Texas, two. The density of population in Europe and other foreign countries is estimated as follows:

Russia in Europe, twenty-eight; Austria, one hundred and forty-one; France, one hundred and seventy-two; England, three hundred and thirty-two; Great Britain and Ireland, two hundred and twenty-five; Prussia, one hundred and fifty-one; Spain, seventy-eight; Turkey in Europe, seventy-three; Sweden and Norway, fifteen; Belgium, three hundred and eighty-eight; Portugal, ninety-five; Holland, two hundred and fifty-nine; Denmark, one hundred and one; Switzerland, one hundred and sixty; Greece, fifty-five; Mexico, seven; Central America, eighteen.

It will thus be seen that while the population in the Pacific States and Territories is less than one to the square mile, some of the countries of Europe exceed three hundred, as for example, England, three hundred and thirty-two; Belgium, three hundred and eighty-eight.

This statement shows conclusively what we most need. We have climate and natural resources equal to those of the Atlantic States, and superior to any in Europe; we have land enough for the support of millions of laborers where we have now only thousands. Abundant labor and cheap living will develop the dormant wealth of the country.

Frederick Kapp, Commissioner of Immigration for the State of New York, estimates the average value of an immigrant to be one thousand one hundred and twenty-five dollars. Dr. Engel, Director of the Prussian Statistical Bureau, estimates the loss to Prussia in sixteen years, by an excess of one hundred and eighty thousand nine hundred and forty-four emigrants over immigrants, at one hundred and eighty million thalers, and says that "a ship loaded with emigrants is often looked upon as an object of compassion; it is, nevertheless, in a politico-economical point of view, generally more valuable than the richest cargo of gold dust."

Governor Haight says, in his last official message, that "the importance of inviting and facilitating the immigration of a farming population from the Eastern States and Europe has been felt by all intelligent men in California, and was presented to the Legislature at the last session for their consideration and action. No part of the world offers inducements to such immigration equal, in all respects, to the Pacific coast of the United States."

PROGRESS OF OUR AGRICULTURAL INTEREST.

A significant illustration of our agricultural progress may be found in our mining reports and market reviews. In eighteen hundred and forty-nine the actual yield of gold in California was ten millions of dollars; in eighteen hundred and fifty, thirty-five millions; in eighteen hundred and fifty-one, forty-six millions; in eighteen hundred and fifty-two, fifty millions; in eighteen hundred and fifty-three, fifty-seven millions; since which date it has gradually decreased to an average annual product of about twenty millions of dollars.

During the years named we imported from the Atlantic States and South America most of the supplies necessary for the support of our population. Contrast this with our agricultural products during the past year. The total value of the wheat, barley, oats, hay, wine, wool, fruit, butter, cheese, and hides produced in California in eighteen hundred and seventy-two, is estimated at seventy-five millions of dollars, of which our exports will probably exceed fifty millions. The wheat crop alone reaches about twenty-five millions, being an excess of five millions over our gold yield; and the total of our agricultural products exceeds by about ten millions of dollars the entire yield of the precious metals throughout the United States.

These astounding results have been produced by the hard labor and individual energy of our farming population, numbering in the aggregate less than twenty-four thousand souls. When we consider that as late as eighteen hundred and sixty the total area of land in cultivation was only nine hundred and thirty-seven thousand one hundred and thirty-three acres, and that in eighteen hundred and seventy-one and seventy-two it reached three million six hundred and fifty-three thousand one hundred and eighty-three acres, our progress seems incredible. And yet how little has been done! California, according to a late report of the Commissioner of the General Land Office, contains an aggregate area of one hundred and twenty million nine hundred and forty-seven thousand eight hundred and forty acres, "of which not less than eighty-nine millions, including swamp and tule lands capable of reclamation, are suited to some kinds of profitable husbandry. Of these, over forty millions are fit for the plow, and the remainder present excellent facilities for stock raising, fruit growing, and all other branches of agriculture. This agricultural area exceeds that of Great Britain and Ireland, or the entire peninsula of Italy." Yet England contains three hundred and thirty-two inhabitants to the square mile, Ireland two hundred and twenty-five, and Italy two hundred and fifty; while California, estimating its population at six hundred thousand, contains only a fraction over three, and of this infinitesimal population, five sixths live in cities, towns, and villages. When I say how little has been done, I mean to say how much remains to be done—how many millions of acres to be subdued and cultivated and made a source of unbounded prosperity to millions of human beings.

THE MINING INTEREST.

An agricultural population of twenty-four thousand has produced seventy-five millions dollars, almost entirely without the aid of capital. It is in great part clear profit to the State. Looking at that branch of industry peculiarly fostered by legislation and by financial operators, what do we see? The latest *Mining Stock Review* reports that the dividends on all the mining stocks deemed of sufficient importance to be quoted on the Stock Board, only exceed the assessments for eighteen hundred and seventy-two, by one and a half millions of dollars. While individuals have made money, I fear a true record of all the mines worked would not show much better results. If we consider the amount of capital invested in mining, in machinery, sluices, mills, and dead work, and the estimated population of fifty thousand actually engaged in that branch of industry, and compare the results with those achieved by our farming population, numbering less than one half, I am sure it will be admitted that the agricultural counties have done their share in contributing to the wealth of the State.

No banks or bank rings have stood ready to take shares in their enterprises and back them by heavy loans; their stock has never drawn forth the millions hoarded on California street; they have never subsidized Legislatures to reduce their taxes to mere nominal rates; very few accommodations have been extended to them either by capitalists or by legislators, and yet to-day the actual cash results of their industry add more to the wealth of the country than all the mines of all the States and Territories in the Union.

Had agriculture received the same encouragement given to mining and stock speculations; had the farmers enjoyed the facilities so freely granted by our financial potentates to the builders of tunnels and quartz mills and the dealers in mining scrip; had they possessed the secret of raising the wind on prospective wheat and wine and wool crops known to those enterprising gentlemen, whose checks on prospective diamond crops are so promptly honored, we might now, instead of having three and a half millions of acres under cultivation, have ten millions, and instead of a gross annual product of seventy-five million dollars we might have upwards of two hundred million dollars.

I say nothing against legitimate mining. While gambling of any kind is inimical to the welfare of a people, no branch of industry requiring mechanical skill and scientific knowledge to make it profitable can justly be said to contain in itself elements injurious to public morals or the prosperity of the State. Wild and hazardous speculations furnish their own remedy in time, and I venture to hope that the day is not distant when money can be had at reasonable rates for the improvement of our lands and the establishment of manufactures.

CAUSE OF COMPLAINT.

What I consider a subject of just complaint is this: not that our banks and banking institutions refuse to engage in enterprises which do not come within the legitimate sphere of their business, but that they use their influence to divert capital from investments likely to benefit the country into such channels as will best subserve the pecuniary interests of the officers and trustees, or their special favorites. This is not banking at all; it is simply gambling on other people's credit, if not on other people's money.

Let any farmer who desires to dyke, drain, irrigate, or fence his land; to plant a fruit orchard, a vineyard, or an orange grove; to go into the business of cotton raising, silk growing, or the manufacture of beet sugar—all sound and legitimate enterprises, well tested on this coast—let such a farmer undertake to raise money in San Francisco at a reasonable rate of interest, and he will find that the money market is "unusually tight." By working at it a long time, offering ruinous rates of interest, sharing his prospective profits liberally, and giving security to the amount of three to one, he may possibly be accommodated; but I would be sorry to invest largely in his chances. The fact that his enterprise is sound and legitimate is sufficient to damn it. Even now, I believe he could raise money more readily on diamond lands than on swamp lands or agricultural enterprises.

It may be said, with some show of reason, that the proper sources for the supply of capital are those having a direct interest in its application; that the farmer who raises wheat should borrow money from the grain merchant; the wool producer from the wool merchant; the viniculturist from the wine merchant, etc. To a certain extent this is now done. Money can be raised on crops actually in the ground, or wool flourishing on the backs of our sheep, leaving a very large margin to cover risks; but the difficulty is to get your land in a condition to produce the crops, and to get the crops away when produced, without paying consequential damages; in other words, to furnish the two or three hundred per cent security upon which to obtain the necessary advances of money for the establishment of your business.

The truth is, the grain merchants, the hucksters, the middlemen, the shippers, the railroad men, the sack makers, the law makers, the Assessors, and the Tax Collectors manage to hold the agricultural classes in a condition of servitude unparalleled in a free country. They are worse off than the Americans in Arizona or the Mexicans in Sonora, of whom the Apaches say that the former make their guns and pistols and furnish them with uniforms, while the latter raise horses and cattle for them and give them occasionally contributions in the way of wives.

WHO GETS THE PROFITS.

I have myself seen wheat selling for one hundred per cent more than the farmer got for it; wine retailing at the hotels in San Francisco at one dollar and fifty cents a bottle, while it sold at Los Angeles for forty cents a gallon, or eight cents a bottle; grapes sold at eight and ten cents a pound, while the producer got only seventy-five cents a hundred; and fruit thrown into the Bay of San Francisco because the fruit dealers could not get rid of it fast enough to keep it from rotting, at five cents a pound, while the fruit growers would be glad to sell it at thirty dollars a ton.

It is said that these things always regulate themselves. Now I question if anything regulates itself. The farmers, viniculturists, and fruit growers must combine for their own protection, as the grain dealers and hucksters combine for their own profit—otherwise they will continue to labor for the benefit of those, who, however useful as a class, produce nothing.

When we look abroad for assistance, we find that foreign capitalists pin their faith upon the sagacity of our own financial operators, and will not go into anything rejected or repudiated by them. All I hope is, that some day or other our English friends will derive dividends from their mining investments, and that their purchases of local railroad bonds will prove remunerative. It might possibly encourage them to put some money in the reclamation of our swamp lands. I am sanguine enough to believe that five or ten millions of British capital invested in the purchase and reclamation of lands on the Bay of San Francisco, or in the Valleys of the Sacramento and San Joaquin, would pay even better in the long run than those attractive investments in mines and railroad bonds into which they have been seduced by some of our financial experts.

According to a late report of the Surveyor General of California, there are about three million acres of swamp and overflowed lands in this State. If these lands were all reclaimed and under cultivation, they would, in his opinion, produce more for a given number of years than all the rest of the land in the State together. To his personal knowledge, eighty bushels of wheat to the acre were raised on reclaimed swamp land in eighteen hundred and seventy-one, and he considers it safe to say, that the average of the whole, if cultivated, would not fall short of fifty bushels per acre.

I am inclined to think that these estimates are somewhat high. We should bear in mind that the whole of any particular tract cannot be equally well cultivated; that there are local peculiarities in the soil and climate—intervening sloughs, sinks and gaps, heavy winds, and other adverse contingencies—which, under the most favorable circumstances, would tend to reduce the average. While the highest average product of wheat in California, taking good and bad lands together, has never exceeded twenty bushels to the acre, it is gratifying to know that this exceeds by seven bushels the average product of twelve of the best wheat-growing States in the Union; and I find by reference to late Australian papers, that the average in that region is not over seven bushels.

Good valley lands in California produce about thirty bushels—reclaimed swamp lands from thirty-five to forty. Assuming the lowest figure to be within bounds, three million acres of swamp land thoroughly reclaimed and cultivated, would yield one hundred and five million bushels. Deduct for cost of plowing, seeding, and harvesting, ten dollars per acre, and we have a net result, at one and a half cents per pound, of thirty-eight million two hundred and fifty thousand dollars—or very nearly double our entire gold product.

QUALITIES OF LANDS.

Properly speaking, there are three classes of land in California subject to overflow; the tule lands bordering on our lakes and rivers; the low alluvial valley lands; and the salt marshes bordering on the shores of our bays and estuaries.

The tule lands derive their name from a species of gigantic rushes which grows upon them, forming a mass of roots and fibers that contribute mainly to the growth of the land itself. For centuries past, these tules have been burnt off by the Indians in search of game during the dry season of the year, and the accretions formed by the roots mingled with the ashes, together with the deposits of soil carried down from the uplands, have gradually caused them to rise above the level of the ordinary water surface. In seasons of flood, or by the action of the tide, where it prevails, they are of course submerged, unless protected by levees or embankments.

The principal tule lands of California lie along the shores of Kern, Rio Vista, and Tulare Lakes south, extending thence northwardly in a belt along the San Joaquin River as far as their junction with the tule lands of the Sacramento, which commence above Red Bluff, following southwardly both sides of the Sacramento River till they form the great delta into which the two rivers are united.

Near the lakes and high up on the rivers the land is of a more compact texture, and contains more soil than in the delta below, receiving the first and heaviest deposits of earth from the mountain streams and adjacent uplands. The leveling tendency of water would doubtless in time elevate the surface beyond the reach of ordinary floods. Even within the past twenty years a natural process of reclamation has brought within the cultivatable area many thousand acres of land which formerly produced nothing but tules.

Of the specific value of these lands in different parts of the State it is not my purpose to speak at present; but I may be allowed to express the opinion that wherever the soil is most compact will be better suited to wheat than in those localities where the texture is chiefly fibrous.

ADAPTATION OF PRODUCTS.

The rich clay lands of this character in the valleys of the Sacramento are unsurpassed for the production of the cereals. They will also grow tobacco, sorghum, beets, and various other useful products. Cotton is yet an experiment in the Valley of the Sacramento, and it may be that the Spring frosts are too late and the Autumn frosts too early to afford much hope of success in the cultivation of that staple so far north.

Within the past few years more attention has been given to the reclamation and cultivation of the tule lands embraced in the delta of the Sacramento and San Joaquin Rivers, above Suisun Bay, than to those of any other locality. Peculiar advantages exist here for drainage and irrigation by means of tide-gates. At high tide the water supplied by the main rivers is backed up, and can easily be distributed over the land; at low tide it can be drained off by sluice-gates; and when neither irrigation nor drainage is required, the gates may be kept closed, leaving only such outlets as may be necessary for the escape of seepage.

The land is exceedingly rich, being composed for a depth of eighteen or twenty feet of matted roots and debris from above, all thoroughly rotted below the stratum of living fibers. But the peaty or spongy nature of the soil gives rise to certain difficulties in the reclamation which have not yet been overcome.

In some places the inequalities of depth and superincumbent pressure of water cause extensive cracks or fissures to open, erroneously supposed to be the work of beavers; but however industrious beavers may be, they always have an object in their industry, and to suppose them unreasonable enough to dig fissures thirty feet deep and miles in length, merely for pastime, is to slander their intelligence by placing it on a par with that of the beaver-cut theorists.

In these cases, where the fissure is too broad and deep to be easily closed at the entrance, it must be leveed around—a process involving considerable expense.

Another difficulty experienced in the reclamation of lands situated in the delta of the Sacramento and San Joaquin arises from the fact that the stoppage of the smaller sloughs and the embankment of the various islands diminishes the area over which the waters of the main rivers were formerly distributed.

It is obvious, therefore, that the larger the area inclosed the higher must be the embankments, the limit being the capacity of the outlets in seasons of high tides and floods for the escape of the water.

Owing to the spongy nature of the soil the dykes sink considerably after they are first constructed, and even when most compact there is a good deal of seepage from below.

The cultivation of the land, also, where there is so little body to it, has a tendency to lower the surface both by the process of decay and the volatilization of the lighter particles. This is especially the case where the tules are burnt, the fire sometimes extending down a foot or eighteen inches below the general level, producing great irregularities, and rendering future cultivation more difficult.

Continuous cultivation for a series of years would probably cause such a depression of surface as to render pumping necessary. This of course would be, to some extent, remedied by opening the gates during the high floods and allowing the water to replenish the land by new deposits of sediment. But the floods do not always come at the right time; they might interfere with the growing crops, and the farmer might find it safer to live on dry land at once than take the chances of getting new land deposited within his existing boundaries.

For this reason I am inclined to the opinion that the tule lands of the delta are more suitable for grazing purposes than for the growth of wheat. And I believe they would be ultimately more profitable bearing from five to eight tons of alfalfa, timothy, or blue grass annually per acre, than they could ever be under permanent cultivation in wheat. Doubtless they will produce jute, ramie, flax, hemp, and various other textiles; but their great value consists in the fact that they are naturally the best meadow lands in the world. The experience of Holland shows that there is sufficient profit in the production of good meat, butter, and cheese to make a nation rich.

It is now generally conceded that the less the State interferes with private enterprises the better. I am willing to admit that the reclamation of our swamp and overflowed lands is properly the work of private companies and individuals; but it is undoubtedly the duty of the State to furnish all reasonable facilities for the prosecution of the work on a systematic and comprehensive plan, otherwise vast amounts of capital will be expended in vain, and endless litigation will ensue from conflicts of interest in different localities.

The closing of sloughs in one place might cause the inundation of another; a dyke in one district might impose upon another the necessity of an expensive system of levees and ditches, not otherwise required. There are questions of individual rights to be considered; questions of county rights; questions of State rights; questions of navigation, which involve the rights of the public at large.*

LEGISLATION NEEDED.

The Legislature should establish a permanent Commission, to consist of at least three of the ablest engineers in the country, whose duty it should be to make a thorough and comprehensive survey of all the lands in the State subject to overflow; to agree upon a system of irrigation, reclamation, and drainage, which would be uniform in its operation and beneficial to all; to furnish companies and individuals desirous of engaging in works of this kind with such data and advice as would prevent the useless expenditure of time, labor, and money, and insure a correspondence in the various parts of the work, without which success must always remain partial and uncertain. This is properly a State work, and has been done by all intelligent States and Governments.

The present system is both expensive and inefficient. It is useless to build an embankment four feet high to keep out tides and floods which may rise six inches above it, or which the construction of contiguous embankments may require to be eight feet high. No reclamation is cheap unless it is safe and permanent. Taking chances for crops is not a profitable business in the long run. I do not consider that any levee on our delta lands, less than nine feet high with a base of thirty feet,

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* The Chamber of Commerce of San Francisco, at a public meeting held in that city in January, eighteen hundred and seventy-two, made an interesting report, from which the following judicious remarks are quoted:

While during the ten years last past it has been evident to all that our agricultural wealth must ultimately be the great interest of the State, it is also evident that the extremes of

DROUGHT AND FLOODS,

Affecting large districts of the interior, impose far more than ordinary risks upon the business of farming, while the singular conformation of the country renders great bodies of our plow lands subject to the same contingencies at the same time. How to obviate this uncertainty of success, attributable not to the soil, but to the topography and meteorology of the country, is the problem now before us. In the great interior valleys the difficulty is to get sufficient water in the Summer time. In the tule lands the question is how to get rid of the surplus water, especially in the Winter time. Yet the surplus in the tules is simply the drainage from the mountains through the very lands that suffer most from drought. If we shall be enabled to

AVERAGE THESE TWO EXTREMES

By such a system of artificial works as shall store the Winter's waters (which now flood the low lands while running to waste) so as to preserve them for the Summer uses of the farmers in the valleys, we shall at once have made California the garden of the United States. For if the liability to droughts and floods now clouding the prospects of the agriculturist could be removed, who does not recognize in the richness of the virgin soil, the variety of its products, the unusual perfection of all kinds of vegetable and animal growths, and the equability of the climate, the elements of a greater and cheaper production, and consequent population, than are possible in any other portion of our country.

But pending the solution of this problem, it has been found impracticable to induce much agricultural immigration into California; because, notwithstanding the advantages of soil and climate, the immigrant fears to settle in a country where large districts are sub-

can be relied upon, although smaller levees may answer the purpose in favorable seasons, and before reclamation becomes general.

The usual estimate of cost is five dollars an acre. Sherman Island has had twenty dollars an acre expended upon it, and is not thoroughly reclaimed yet. The cost varies, however, in different localities, depending upon the area reclaimed and other local circumstances.

It is gratifying to know that extensive reclamation works are now in progress on the various islands of the delta. Twitchell, Grand, Brannan, Andros, Tyler, Staten, and Bolin Islands are nearly all inclosed and will soon be under cultivation. All this has been done by private enterprise. I believe that every acre of these lands will be worth one hundred dollars and upwards when completely reclaimed.

Glancing next at the tule lands of the San Joaquin Valley, we find that they are equally rich, but in consequence of their comparative remoteness and the greater difficulties of reclamation, will not be available so soon. Here larger capital will be required and more extensive and costly works. The country adjacent to the lakes being flat and the drainage not so easily effected, reclamation must be general and a system of canals will be required. Fortunately the San Joaquin Valley Canal Company have taken this matter in hand, and while bringing the waters of King's River, the Merced River, and the waters of Tulare and other lakes under control, for purposes of irrigation, will greatly facilitate the process of reclamation. The Southern Pacific Railroad, now extended beyond Visalia, will afford means of transportation for the products of the country, and altogether the outlook is encouraging. Before many years cotton, tobacco, ramie, etc., will be among the most profitable staples of the State.

VALUE WHEN RECLAIMED.

A few practical examples of results actually obtained will best illustrate the value of these lands when reclaimed.

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ject to uniform droughts, continuing for two or three years in succession, while in other places floods, covering millions of acres at a time, are likely to destroy the improvements of whole neighborhoods.

LAND MONOPOLY.

Moreover, a great outcry has been raised in all directions against land monopolists. We believe that the practice of holding large tracts of unimproved land merely for a rise, by parties who refuse to do anything for its improvement, is certainly a grave injury to the State, as are all other kinds of speculations wherein the operator adds nothing to the value of the article whose price he seeks to raise. But when we contemplate the necessity for great public works, without which land must be practically valueless in any hands, the aspect of this question changes. Works of irrigation and of reclamation on a scale commensurate with the wants of the State cannot be constructed at retail. To conduct such enterprises as the topography of the Sacramento and San Joaquin Valleys require, calls for large brain to conceive, large means to execute, and the ownership of large bodies of land, the profits of whose improvement can alone justify the enormous expenses to be incurred. Were the laws of the State to prohibit the ownership of larger tracts of land than one hundred and sixty acres, they would simply provide, under the penalty of individual ruin, that no swamp land should be reclaimed, and no lands subject to drought should be irrigated. In other words, they would condemn the tule lands, lately proven to be the richest in the world, to endless solitude, and large portions of the great interior valleys to everlasting barrenness.

These views, we are confident, are those of all thinking men who are conversant with the wants of our State. When wholesale ownership is but a preliminary to the construction of improvements which are impossible to the small farmer, yet indispensable to the settlement and cultivation of the land; and when the profit to be derived from the improvement can be realized only by the sale and settlement of the improved lands, then the greatest good to the greatest number requires that men of enterprise and capital should have the privilege of owning the lands as an inducement to make the improvement.

Twitchell Island, in the delta of the Sacramento and San Joaquin, was purchased by a Kentucky company, who paid for three thousand acres twenty-five dollars per acre. By the simple process of burning the tules, scattering the seed in the ashes and tramping it in by running herds of sheep over it, they planted one thousand acres, which gave them a gross yield of wheat amounting to thirty-six thousand dollars. Had they planted the whole tract, it would have yielded them, at the same rate, a surplus of thirty-three thousand dollars over the entire cost of the land. As high as seventy-five bushels to the acre was produced on particular parts of the tract, and wherever a fair average test could be made the product was from forty to fifty bushels.

On Sherman Island, some of the lands cultivated in wheat yielded a profit of thirty dollars to the acre, and the average was not less than twenty-five dollars. Personal observation and the concurrent testimony of farmers residing on the island, satisfies me of the truth of these statements. In one instance brought to my attention, a fourth interest in the crop yielded sixteen dollars an acre, and the land is now under lease for a third interest.

At the Mormon settlement, in the Sacramento Valley, an average yield of forty bushels to the acre was produced during the past Summer. Part of the land cultivated yielded as high as sixty bushels an acre.

From these examples it is obvious that a yield of forty bushels of wheat to the acre can be depended upon even in seasons of drought. Assuming that only two thirds of every tract sown in wheat will, for a time at least, be cultivated with care, the average result for the whole would be twenty-six and sixty-six one hundredths bushels, which, at one dollar and twenty cents per bushel, would amount to thirty-two dollars gross. The average cost of plowing, seeding, harvesting, sacking, and transportation, is about fifteen dollars to the acre, leaving, as the net result, seventeen dollars per acre, which in most cases will pay for the land and the cost of reclamation in a single year. But to this may be added, as clear profit, the hay or grain resulting from the volunteer crop after the first harvest—worth, say ten dollars an acre.

Where crops can be irrigated during the Summer, as will eventually be the case on all the swamp lands throughout the State, the annual product will be greatly increased. Two or three alternate crops of different products will not be unusual in a single season. The yield of these moist lands in alfalfa, timothy, and the various grasses, is enormous. Five tons to the acre is considered an ordinary crop, while as high as eight tons in a single year is nothing uncommon. At fifteen dollars a ton, a very handsome profit can be made from the growth of hay—allowing one half for expenses of cultivation, baling, shipment, etc.

Considerable work has been done during the past year on the principal islands of the Sacramento and San Joaquin delta. Rough and Ready, containing about one thousand six hundred acres, is now under cultivation. The cost of reclamation, up to the present time, has been about eight dollars an acre. Venice Island, owned by J. Mora Moss and others, is encircled by a substantial levee, and contains several thousand acres of very fine land, most of which is now available for cultivation. Mandeville Island, four thousand acres, is owned by Colonel Jack Hays, Captain Freanor, and others, who have built an excellent house on the premises, where Colonel Hays and his family are now temporarily residing. This is a very fine tract, and will be cultivated in part, and used for grazing purposes this year. Bacon Island, containing ten thousand acres, is owned by H. D. Bacon and others, who have nearly completed the reclamation. Work has been vigorously prosecuted on this island during the past season, and it will soon be placed beyond all danger of floods. The land is excellent, and the location convenient of access. Bolin Island contains about six thousand acres, and is owned by Messrs. Cassell & Co. The amount expended in the reclamation, so far, is about twenty thousand dollars. Staten Island, owned by Haggin & Tevis, contains about eight thousand acres. Reclamation is making rapid progress on this island, and it will undoubtedly prove a very valuable investment. The land is rich and well located. Twitchell Island, three thousand six hundred acres, owned by Prather Brothers, Minor, and Roberts, has been under partial cultivation for two years. Cost of reclamation, twelve dollars per acre. The first wheat crop was exceedingly fine, averaging forty bushels to the acre. About one thousand acres was planted. Last year the wheat was planted too early, and was damaged by the flood. This year the land will be thoroughly plowed and worked, and one thousand five hundred to two thousand acres will be planted. As high as eighty bushels to the acre has been produced on this island. Brannan and Andros Islands, containing over twelve thousand acres, are in process of reclamation, at an estimated cost of about six dollars an acre. The unreclaimed land is held at twenty-five dollars an acres; reclaimed, at forty dollars to fifty dollars, depending on location. A tract of three thousand acres was recently sold for twenty-five dollars an acre. Sherman Island contains sixteen thousand acres, is situated near the bight of the delta, where the waters of the Sacramento and San Joaquin empty into Suisun Bay. The levees have necessarily been expensive; but it may be considered proof against all floods. The farmers living on this island have manifested great energy and perseverance, and will, doubtless, soon reap satisfactory rewards. The land is wonderfully productive, yielding forty to fifty bushels of wheat to the acre, and vegetables of fine quality and such enormous proportions as to excite the astonishment of visitors from abroad. Present value of farms, assessments paid, from forty-five dollars to one hundred dollars an acre. Grand Island, sixteen thousand acres, has been reclaimed, or nearly so, at a cost of about eight dollars an acre. Value of the land from forty dollars to fifty dollars an acre. The Webb tract, above Antioch, contains some twenty thousand acres, and is in process of reclamation. It is now encompassed by a levee, which will be increased in size as soon as practicable. Amount expended, four dollars an acre; value, from forty to fifty dollars. Some sales of tracts on this island have recently been made to settlers at twenty-five dollars an acre; but good selections cannot be had now at that rate.

Grizzly Island, situated in Suisun Bay, contains twelve thousand acres, and has had about eighty thousand dollars expended in its reclamation. The land is exceedingly rich, and bands of sheep and cattle are now grazing on it. During eight months in the year the water at the upper end is fresh; at other times brackish. Messrs. Chapman & Co. are the owners. Nearly all the swamp land in Contra Costa County, embracing several districts, amounting in the aggregate to about fifty thousand acres, is now in process of reclamation. Ten thousand acres, fronting on Old River, has recently been sold to settlers for twenty-five dollars an acre. The reclamation of this tract cost between five and six dollars an acre. Work will probably be commenced this

Summer on Roberts and Union Islands, embracing an area of ninety thousand acres, principally owned by the Tide Land Reclamation Company. The estimates for reclaiming these islands, as made by General B. S. Alexander, Chief of United States Engineers for this coast, will not exceed four dollars an acre. A large body of land, extending from near Sacramento City on the east side of the river, comprising the Russian and other districts, has been partially, and in some places wholly reclaimed. For a distance of twenty-five miles an almost continuous line of fruit orchards extends along the river bank, supplying a large proportion of the apples and peaches used in this city. The Messrs. Sargents have reclaimed a tract adjoining the upland in San Joaquin County, to the east of Bolin and Venice Islands, containing fifteen thousand acres. Doctor Ryer and his associates have commenced work on Cache and Steamboat Sloughs. Several reclamation districts have been formed, reclamation commenced, and in some instances completed, within an area covering nearly all the overflowed land from Cache Slough, on the west side of the Sacramento River, to Suisun Bay. One of the most important and extensive reclamation works yet undertaken in the State is that of the Tule Land Reclamation Company, of which Messrs. Blanding, Rose, McLane, Heuston, and others are the leading members, commencing at Knight's Landing, on the west bank of the Sacramento, and extending to a point fifteen miles above Colusa, embracing one hundred and twenty thousand acres, of which this company own thirty-six thousand. The cost of reclamation is about four dollars an acre. No finer body of land exists in any part of the world. For forty miles it is almost a dead level, with a rich, deep soil, capable of easy cultivation, and producing enormous crops of cereals wherever they have been planted. Mr. Reed, President of the State Agricultural Board, has in cultivation, near Knight's Landing, one of the most magnificent wheat fields ever seen in California, the probable yield of which will be forty bushels to the acre. Every acre of the tract reclaimed is capable of producing equally good crops. At the Mormon Settlement the capacity of the soil has been tested by actual results, quite as satisfactory, obtained during the past two years. Directly opposite to this tract, in Sutter County, reclamation has been commenced, and works are to be completed during the coming Summer, embracing over one hundred thousand acres of equally rich land—estimated cost, from four to five dollars an acre.

VARIETY OF PRODUCTS.

So far, these calculations of profit are based mainly upon the product of wheat, our principal article of export. Barley and other cereals will also be in demand for export and home consumption; but there are other articles of use and luxury for which these lands are peculiarly adapted.

Experiments recently made in the culture of cotton show conclusively that this will soon become one of the great staples of the Pacific coast. The area of land, however, suitable for the growth of cotton, is limited. It requires moisture, heat, and comparative exemption from frost. The alluvial lands and tule regions of the San Joaquin Valley, adjacent to Kern, Buena Vista, and Tulare Lakes, will, in all probability, prove as valuable for cotton raising as the best lands of South Carolina or Georgia.

The cultivation of the sugar beet and its manufacture into sugar is no longer a problem in this State. The Alvarado and Sacramento factories have demonstrated the peculiar adaptability of our alluvial soils to the growth of this article, and the results of the enterprise are most encouraging. The Alvarado tract has been but recently reclaimed from the salt marsh, and furnishes the very best quality of sugar beet.

Tobacco, ramie, sorghum, sugar cane, and a great variety of semi-tropical plants will, as experience shows, flourish in our rich alluvial soils and warm valleys.

SALT MARSH LANDS.

The lands bordering on our bays and estuaries are composed of deposits of silt and other matter from the rivers and sea. Vegetable mold and fine earth are washed down from the uplands, and the sea contributes weeds, grasses, sands, shells, and animalculæ. These form what are called the salt marshes. Professor Cook, of New Jersey, says: "The worth of these lands, when properly reclaimed, can hardly be overestimated. Wherever there is a sufficient quantity of clay or mud mixed in with these grass roots and other organic matters of the marsh, it will make the soil inexhaustibly rich." General Alexander, Engineer in Chief of the United States on the Pacific coast, says: "Their complete reclamation is entirely practicable, at small cost. * * * They are in no danger of floods. A dyke four feet above the surface will afford complete protection even against storm tides. When this land is once relieved from salt water, it may be freshened sufficiently for grasses in a single season, and for grain and vegetables in two years. This I know from experience." It will certainly be much more valuable than the adjoining uplands, for it will be greatly more productive.

Professor Henry Mitchell, chief in Physical Hydrography of the United States Coast Survey, says: "Marshes reclaimed from tide waters are the most fertile and enduring of all soils." Professor Davidson, chief of the Coast Survey on this coast, says: "I am satisfied that these lands, when reclaimed, will be productive and valuable, and that eventually all the marsh lands bordering on the bay will be reclaimed."

Captain A. F. Rogers, of the Coast Survey, who made the actual surveys of these lands, and who is personally more familiar with them than any person on this coast, says: "All the marsh lands on the Bays of San Francisco, San Pablo, and Suisun may be easily reclaimed, being above the level of ordinary tides, by a system inexpensive compared with the large margin of profit evidently offered by the unexampled richness of the soil and the rapid development of the country."

Notwithstanding the best engineering testimony as to the feasibility of reclaiming these lands at a moderate cost; notwithstanding the example furnished in New Jersey, where land, worth comparatively nothing, advanced in a few years from fifty dollars to five hundred dollars, one thousand dollars, and even two thousand dollars an acre; notwithstanding the experiences of Holland, Great Britain, China, and other countries, there are men of influence in San Francisco who will tell you these lands are of no value, and they cannot be reclaimed. The salt cannot be got out; crabs will bore through the levees; your dams will sink, or some other casualty will happen—the toads or grasshoppers will trouble you.*

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* WILL RECLAMATION PAY?—A question of consideration is, Will reclamation of marsh lands pay those who invest their capital in such undertakings? When we invest our money in that which is perishable, stealable, or depreciable in value to such an extent as to become positively worthless, we have an uncertain security for the principal invested, and profit is doubtful. We can invest in that which is itself a standard of value, such as the gold coinage of the country. In this case the security is good in the thing itself, but

I marvel at the intelligence and enterprise of the leading men of San Francisco! My confident opinion is, that, outside of California or Montgomery streets, they know less about the resources and capabilities of their own State than the Hindoos or the Hottentots.

Mr. George T. Ladd, in a very sensible article on the salt marshes of San Pablo Bay, says:

"Originators of enterprises of this character frequently meet with absurd, and even amusing, objections upon the part of really intelligent persons, who do not happen to possess any practical knowledge upon this particular subject, and it is proper to meet some of those objections here. One man says: 'Of course your dyke will exclude the tide waters and freshets, but, nevertheless, the salt water, *which underlies the marsh*, will be forced up, or 'seep' up, to the surface.' Answer: These marshes are not floating bogs; the rich surface soil of three feet in thickness rests upon a solid subsoil of blue puddle clay, from fifteen to thirty feet in depth; that, in turn, upon a substratum of yellow clay; and the substructure of all is sandstone. This has been ascertained by boring the marshes in many different places. Water cannot 'seep' through clay and sandstone, and in that respect these marshes are quite as free from danger as any uplands. Another skeptic says: 'Well! granting the marshes are composed of all the elements which go to make the most fertile lands, you *never can* get the salt out; whereas, the fresh water marshes, being entirely free from salt, become almost immediately productive after being dyked and drained.' Answer: In other parts of the world it is found that all the superfluous salt can be washed out of such lands in a single season, and why not in this case? With the almost unlimited supply of fresh water at our command, the freshening of the soil is a simple matter of a year's time, and then it is in the same condition as reclaimed tule land, except that it is a much more compact, enduring soil than the peaty earth of the latter. Another says: 'Your reclaimed marshes will be exposed to the danger of devastating floods from the Sacramento River.' Answer: They are not located upon the Sacramento or any other river; they are situated inland from San Pablo Bay, and the heaviest flood that ever flowed through the Straits of Carquinez out into San Pablo Bay could not affect high tides in Sonoma and Napa Creeks to the extent of six inches. The highest water produced by a combination of Spring tides, freshets in Sonoma and Napa Creeks, and a flood in the Sacramento River, only raises the water two feet above the mean level of the marshes, and then it is almost slack water without appreciable current. At low tide, the water falls so low that the land can be drained of the superfluous rainfall. It is this immunity from danger of inundation by floods, and facility for drainage at all seasons, which gives to these particular lands a special advantage over reclaimed tule lands, which, though of undoubted great fertility and value, are liable to devastation by extraordinary floods, and cannot always be drained (except by pumping) until the river subsides below their level."

Referring to the value of the salt-marsh lands of San Pablo Bay, when reclaimed, Mr. Ladd says:

"The marshes under consideration appear to possess unusual advantages, both as to facilities for cheap reclamation and in prospective value. Their elevation above ordinary high tides and their sheltered location admit of a cheaper system of levees than would be deemed secure elsewhere, and insures the best of drainage. The immense amount of fresh water available enables the soil to be freshened in much less time than if it were necessary to depend upon the rainfall alone, and insures the crops against danger from drought. The water frontage (equal to one mile for each tract of four hundred acres) secures to the producer the cheapest and most rapid transportation to market. Their prospective value is still further enhanced by their proximity to San Francisco—only twenty miles by water—and by the projected railroad extension from Adelante, on the California Pacific Railroad, to complete the short route from Sacramento to San Francisco, via Saucelito. Three surveys have already been made for this road, all of them crossing these marshes, and railroad men contemplate the route as one which must be constructed within two or three years.

"Good farming lands in Napa Valley rate at one hundred dollars and one hundred and twenty-five dollars per acre now, and in the natural order of increasing valuation will probably be worth still more in a few years. As the best authorities agree as to the superior value of reclaimed lands, and as the cost of cultivation and transportation will be less and the crops more certain than in the valleys, it is safe to assume that they will be equally as valuable, if not more so, in the third and fourth years after reclamation; and it is therefore fair to esti-

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the profits are uncertain. Or, investment can be made in that which has an intrinsic value of its own, non-depreciable, independent of any standard value but its own worth, and, above all, indestructible and immovable, and advancing in value with time, such as good land. For this investment the security is certain, visible, and tangible, and the profits are equally certain, and limited only by the inactivity of the investor in developing them.

As it is the interest of every State to develop its resources, and as the principal source of wealth to a country must be the productions of its soil, it is of the highest importance that these should receive attention. Capitalists will unhesitatingly engage in speculations for the working of gold mines, where the chances of profitable return depends almost entirely on the lucky striking of a rich vein of the precious metal, of which we hear of more disappointments than successes. With a plethora of money in our markets, men are continually seeking for safe and profitable modes of employing their idle capital, and in lieu of the desired investment they are often content to accept the comparatively small percentage allowed by the banks, while almost at their doors may be found the means by which their capital can be safely and profitably employed in the reclamation of these much-needed marsh lands.

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On well-drained land, such as we would wish to see made of our marsh lands, a farmer would realize fully treble the profits derivable from the cultivation of upland ground, as he is certain to raise crops such as the upland ground, with any quantity of fertilizers, could not produce; and further, the question of expense in working such ground is important in supporting our arguments, as manures and fertilizers are wholly unnecessary, and a series of heavy crops can be raised for thirty years without the soil requiring any stimulant in shape of manure.

Farmers complain that the most serious item in the expense of farming is the constant renewal of the vitality of the soil by manure. In the case of reclaimed marsh land the expense is saved, as even the soil itself can be used as manure on upland ground with great advantage. The plowing is also attended with more ease. No large bowlders are met with to interrupt the work or interfere with the proper tillage of the soil.

We have here, then, an investment for the capitalist which will return him enormous profits; a rich and productive farm for the agriculturist, that will yield him tenfold for his labor; a means of employing the thousands who are daily flocking to our shores from Europe; and last, though not least in importance, a means of providing an abundant supply of fresh, cheap food for the people, who are compelled to purchase the diseased meat, and stale and unhealthy vegetables, and diluted milk, which are to be found in our markets. All these advantages lie within our reach, and we should be blind indeed to our own interests did we not seize them.—*Report of Jerome J. Collins, Civil Engineer, Hudson City, New Jersey, on the Newark Meadows.*

mate their prospective value at from one hundred dollars to one hundred and twenty five dollars per acre.

"The property will commence to be productive for grazing purposes in the second season after reclamation, for meadow lands are so limited in this section that fine pasturage in the vicinity of San Francisco always commands a good rental; and it is a well-known fact that first-class grass lands within easy distance of large cities become more valuable than grain lands. If the lands are cultivated during the third and fourth seasons, they will repay all that has been expended upon them and leave the property as a net profit. Large as these estimates may seem they are entirely within reasonable limits, and are based upon the results of similar enterprises elsewhere. When the attention of capitalists is once fairly drawn to the immense profits which are to be derived from the purchase and proper reclamation of these lands, the unsightly marshes which now blot our shores will soon be transformed into rich and productive lands, teeming with an industrious population, and contributing largely to the material wealth and prosperity of the State."

The best proof of their utter ignorance of the subject is the fact that wherever reclamation has been attempted it has proved successful. There are many productive patches, already comprising in the aggregate several thousand acres, under cultivation in Napa and Petaluma Sloughs, and along the shores of the bay in Alameda County. Mr. E. L. Beard has eight thousand acres nearly reclaimed, upon which bands of cattle are now grazing. Garden Island, near the Town of Alameda, has been reclaimed at a cost of seven dollars an acre, and will soon be one of the most productive tracts on that side of the bay.

In fact, reclamation of marsh, swamp, and overflowed lands can no longer be regarded as an experiment in this State. No enterprise has progressed more rapidly in California during the past three years. Nearly one half the overflowed lands in the Sacramento and San Joaquin Rivers are reclaimed, or in process of reclamation. The variety of products to which these lands are adapted, their inexhaustible fertility of soil, the facilities existing for irrigation and cheap water transportation, give them an exceptional value. The greatest drawback has been the want of capital to reclaim them thoroughly and on such a scale as to preclude all danger from seepage and floods. British capital has been invited, and the writer has made two visits to London for the promotion of swamp land enterprises. One of the principal objections urged there against investments of this kind is, that if the lands are so rich and can be reclaimed at so small a cost, there can be no good reason why the necessary capital cannot be had in California; and the fact that application is made to foreign capitalists is taken as prima facie evidence that men of means, who are supposed to be familiar with the resources of their own State, do not look favorably upon such enterprises. The truth is, there is very little available capital on this coast; but the best answer to the objection urged is the fact that the owners of the lands and private associations are reclaiming them as fast as they can—in many cases borrowing money for that purpose at two or three per cent a month. If that does not show their faith in the value of the lands, it cannot be shown by argument. Within a few years foreign aid will not be required; and it will not be possible to secure large bodies of land, which, after all, will probably be no detriment to the State.

Another question asked is, What are the sources of increase upon which capitalists can depend for dividends?

Good valley lands in California produce about thirty bushels to the acre; reclaimed swamp lands from thirty-five to forty. Assuming the lower figure to be within bounds, three million acres of swamp land, thoroughly reclaimed and cultivated, would yield one hundred and five million of bushels. Deduct for cost of plowing, seeding, and harvesting, ten dollars per acre, and we have a net result, at one and one half cents per pound, of thirty-eight million two hundred and fifty thousand dollars, or very nearly double our entire gold product—a pretty good source of income.

Experiments are now being made on Twitchell Island in the cultivation of ramie, jute, China grass, and Japan hemp, for which the soil and climate seem to be peculiarly adapted. Ramie and jute give a net profit to the acre of one hundred to one hundred and fifty dollars annually—enough to recompense the investment fourfold. The large scale on which these experiments are being made will furnish a satisfactory test during the coming season. Ramie is a perennial plant, and semi-aquatic. Its value as a textile has no equal. The jute is next in importance, and furnishes material for our wheat and wool sacks. Over three million bales are annually exported from Calcutta. Jute is sown like wheat, either in drills or broadcast, and matures in from ninety to one hundred days. On the rich plains of Bengal from three thousand to four thousand pounds per acre are grown. The price of jute in the United States is about half that of cotton. There is a duty on the raw material of thirty per cent; manufactured, forty. Our tule lands will produce it at a less expense than in India, where the advantage of cheap labor is more than counterbalanced by our labor-saving machines. The City of Dundee, in Scotland, contains seventy-six mills, all engaged in the manufacture of jute and flax, employing two thousand hands. We will require on this coast, for many years to come, from three million to five million dollars worth of burlaps. It can as well be grown here as in India, thus saving freight and duties; and there is nothing to prevent us from manufacturing all we can produce.

To capitalists at home and abroad these simple facts are submitted. An unprejudiced examination of our resources is all that can reasonably be asked. We need capital to improve these fertile lands in a thorough and substantial manner; and feel confident that a judicious investment in their reclamation and cultivation will pay better in the long run than the most promising speculations in wild-cat mines.

OTHER SALT MARSH LANDS.

With reference to the marsh lands bordering on the Bay of San Francisco and its branches, the question has been satisfactorily solved as to their fertility when reclaimed. Most of them are so situated that immediately upon the exclusion of the salt water by suitable embankments, fresh water streams can be turned in upon them, and in some instances the leaching process can be hastened by means of flowing artesian wells, as in the case of the Beard Tract. These salt marshes have the advantage of exemption from overflow by floods. Situated on the navigable waters of the bay, they also possess a special value from their proximity to the commercial metropolis of the coast. For grazing and dairy purposes they will be extremely valuable. Instead of importing butter for home consumption, there is no good reason why California should not make this a profitable article of export. Fifty thousand acres of marsh land, thoroughly cultivated in grass, would yield ten millions of pounds of butter per annum, which would find a ready market in China at fifty cents per pound, making a gross yield of five millions of dollars. Allowing one half for cost to the producer and profit to the exporter, the net result would be two millions five hundred thousand dollars, or fifty dollars an acre. Nor are these extreme figures, as shown by the experience of Holland and other countries.

According to McCulloch, "the rearing of live stock and dairy husbandry in Holland is a much more important source of national wealth than tillage." The export trade in butter, cheese, etc., to Great Britain, India, and China, is very large, and contributes materially to the wealth of that remarkable country. With a territorial area of seven millions eight hundred thousand acres, five millions three hundred and ten thousand acres (chiefly redeemed from overflow) are highly cultivated. The reclaimed lands are exempt from taxes for ten years; and the average value is not less than three hundred dollars per acre, while the rents scarcely exceed two and a half per cent per annum. California, with an area of ninety-eight millions six hundred and thirty-four thousand two hundred and forty acres, has under actual cultivation, altogether, not more than two millions one hundred and sixty-five thousand seven hundred and seventy-six acres. The average value of all the land in the State would probably not exceed three or four dollars an acre. If we examine the subject, we will find that Holland teaches us many a lesson of intelligent enterprise, as well as patient industry. Twenty-five years ago, according to a late writer, there were in one of the provinces "forty-five thousand acres of first-rate mud, aching to be turned into Dutch cheese for foreign markets, but which was smothered out of useful existence by just as many acres of brackish water twelve feet deep. About the same time there were divers Dutch fingers itching to feel the guilders that forty-five thousand acres of rich meadow land and pastures would produce, and twenty-five years ago the Government set about relieving that aching itch."* The land was reclaimed and immediately sold for eighty to two hundred dollars an acre. It could not now, in all probability, be purchased for one thousand dollars an acre. Such a spirit as this might well be emulated on the Pacific coast. No class of immigrants would be more valuable in California than the honest, steady, and industrious Hollanders. Their experience in the construction of dykes and ditches, their frugal habits, their wonderful success in surmounting all natural obstacles, would render the advent of any considerable number of them to this coast a matter for general congratulation.

THE BEARD TRACT.

In order to show specifically what can be done with our marsh lands, of which there may be altogether two hundred thousand acres within the limits of the State, reference is made to a single tract on the Alameda shore, belonging to Mr. E. L. Beard.

This magnificent tract comprises twenty thousand acres of marsh land, with a frontage of about fifteen miles on the southeast side of the Bay of San Francisco. The distance to the City of San Francisco from the central point is twenty-five miles. Vessels of the deepest draught can lie alongside the wharf at the proposed town site of Ceralvo, there being at this point a depth of water at low tide ranging from five to eight fathoms. Bay steamers and smaller craft can touch at various points convenient for shipment; and with the proposed improvements, each section of the land will be brought within easy water communication with San Francisco. By ferry from Ceralvo, the trip to San Francisco can be made in less than two hours; by railroad from Washington Corners or Niles', in an hour and three quarters. The latter stations are situated on the San José and Central Pacific Railroads, and are distant from the nearest points of this tract about four miles.

The soil is a rich clay loam, formed of the debris washed down from the surface of the adjacent Coast Range Mountains by the Guadalupe and Coyote Rivers, and various smaller streams; also, by the freshets and floods caused by the Winter rains. All these marsh lands are formed by the accumulated deposits of centuries, and contain the richest elements of soil from an area of fertile country not less than twenty miles wide by one hundred in length. The whole tract is about twelve inches above ordinary high tide, and is rarely entirely covered with water. The Coast Survey Chart shows that the mean rise and fall of tides is six feet and three inches; mean of Spring tides, seven feet and three inches; mean of neap tides, four feet and nine inches.

Estimates made by competent civil engineers, show that a first-class embankment can be constructed from San Bruno Point, near San Francisco, to Allen's Landing, north of Alameda Creek, for the sum of four

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* The same writer says: "No other people on earth are provided by nature with that sturdy continuity which enables them to gather solid and fruitful earth, inch by inch, from a roaring, thundering, stormy, encroaching sea. No other people but the Dutch are just fitted by nature to pump, and rake, and shovel a fine productive country out of a cold, sour, reedy marsh.

"Along the greater length of the western coast a line of low sand hills serves to partially separate the main sea from the Hollow-land, which is somewhat lower in surface; and wherever that line of hills subsides, then the work of the dyke builders continues the separation which the natural wall only half accomplished. Vast lines of earth-banks, from twenty to forty feet in height, and from twenty to a hundred feet in thickness, generally faced on the sea side with massive walls of brick and stone, have been raked together and maintained at an incomparable cost of labor and watchfulness. Huge dams have been swung across the mouths of rivers to govern the level of their variable waters; and from those dams, which are often the nuclei of great cities, more lines of earth walls, of all heights below a hundred feet, and of all widths less than a quarter of a mile, stretch away along up each bank of each river, creek, and bayou, and shut them into bounds; give docks and ways to shipping, roads and canals to travelers, forts of defense to cities; give broad fertile plains to an agricultural people; give fruitful happy homes to three millions of intelligent Hollow-landers. Centuries of unremitting care have hardened these main dykes into the most substantial parts of the country; but where it is all so spongy, and so constantly drenched by a moist climate, they will never acquire that solidity which will leave them above the need of attention. The oldest and firmest of the great lines of dykes must still maintain great piles of willow boughs ready for instant application to any opening crevasse; and must still maintain their lines of watchmen—watchmen who cannot at all times echo the salutation that one receives from the peasants of the country, nor the cry which one still hears from the night patrol of the old Dutch cities, 'All's well!' A sudden rush of wind piling the waters to an extraordinary height over some low or softened portion of the separating wall startles a whole country from its quiet.

"As in Constantinople the first alarm of fire calls the water carriers and spare police, the second the proprietors and officers of State, and the third the Sultan himself, to the scene of disaster, so in Holland continued rush of water admits of no idle spectators, but calls every hand capable of wielding a spade or bearing a bundle of rushes to aid in preventing devastation worse than conflagration. Sometimes the sea has proved ungovernable in its caprice, and has swept over and retained what was before inhabited country. At other times it has just as capriciously retired from the bounds so carefully built up for its government, and left rich flats of mud to grow up into cheese-producing districts where its waves formerly bore luggers of the produce of other countries. All these sea changes are carefully noted, and assisted or guarded against, as far as possible, by artificial means. Shifting of the sands, or the mud bars, or the vegetable growth at the bottom of the sea, hundred and nine thousand three hundred and twenty-two dollars. This embankment would reclaim forty-eight thousand one hundred and fifty acres of land, which would be worth, when reclaimed, five million eight hundred and fifteen thousand dollars. The average cost of the whole work would be a fraction over eight dollars and fifty cents per acre. The Santa Clara and Contra Costa sections, including the twenty thousand acres belonging to Mr. Beard, would comprise twenty-seven thousand nine hundred and seventy-four acres, the reclamation of which would cost two hundred and twenty thousand nine hundred and fifty dollars, or a fraction less than eight dollars per acre. Many owners would willingly agree to give a portion of their lands for the cost of reclamation, or pay their proportion of expenses, with such profit to a company furnishing the capital, as might be agreed upon. Under the law, a majority of the owners may petition the Board of Supervisors, and cause a reclamation district to be formed, and upon the completion of the reclamation, all the owners are compelled to pay pro rata their share of the expense. From inquiry made recently, it is more than probable that a petition, having in view the reclamation of the lands on the western side of the bay, would be almost unanimously signed, provided a company, possessing the requisite capital, duly organized and ready to proceed with the work, could be induced to take the enterprise in hand, and carry it out in a manner commensurate with the value of the property.

There are local peculiarities which greatly facilitate the process of reclamation. The two principal rivers south of San Francisco—the Guadalupe and Coyote—debouch into the bay, passing directly through the marsh lands. The artesian well system also, which has been found so successful in the Alameda and Santa Clara Valleys, continues in full force far down into the marshes. Already several artesian wells have been dug north of Alviso, from which an abundant and never-failing flow of fresh water has been obtained at a depth not exceeding two hundred and fifty feet. All the water thrown to the surface in the San José Valley, where there are some hundreds of artesian wells in operation, finds its way into the Guadalupe, Coyote, and other streams, and becomes a valuable element in the reclamation and irrigation of the salt marshes. When the dyke is completed, all this water can be thrown over the surface, the salt washed out, and allowed to flow into the bay at low tides, and the land thoroughly freshened in a single season. The Winter rains will, of course, greatly facilitate this leaching process. Irrigation during the dry seasons is of the utmost importance. At these seasons none of the water need be allowed to go to waste. It may be necessary, and, in fact, it would be desirable, to have artesian wells bored at intervals over the entire marsh. A contract can be made to have them bored to a depth of three hundred feet for five hundred dollars per well. Allowing one well to every five hundred acres, this would make a total cost of twenty thousand dollars. The substratum of the country at that depth is very hard, and the source of supply is so extensive that it is probable there would be no material diminution in the flow of water from the number of wells. The experiment, however, of five or ten might be tried to advantage. Mr. Beard's artesian well affords a striking test of the utility of fresh water in the reclamation of these lands. Already, in a single season, that portion of land which he has completely inclosed and submerged in fresh water, shows a fine growth of flags, grass, and willows, and will be excellent meadow land in another season, even without cultivation.

The reclamation of salt marshes in the vicinity of our large cities has already proved one of the most lucrative enterprises ever undertaken in the United States. In eighteen hundred and sixty-six the New York Land Reclamation Company purchased a tract of three thousand acres of salt marsh land lying on the Hackensack and Passaic Rivers, and Newark Bay, in the State of New Jersey, distant from the City of New York from eighteen to twenty-five miles. For this land they paid one hundred dollars per acre, amounting to three hundred thousand dollars for the tract. The cost of reclamation was eighty-eight thousand eight hundred and eighty dollars; total cost, three hundred and eighty-eight thousand eight hundred and eighty dollars. It was estimated that the land, upon its complete reclamation, would rent for fifty dollars an acre per annum, and be worth not less than five hundred dollars an acre, showing a net profit, if sold, of one million one hundred and eleven thousand one hundred and twenty dollars. It was also estimated that by holding it for ten years it would be worth one thousand dollars an acre. From a recent article in the *Engineering Journal*, of New York, it appears that at the present time, three years from the commencement of the work, the land rents for one hundred dollars an acre, and is held at one thousand dollars an acre, and sales can readily be made at that price. The water front is considered to be worth two thousand dollars an acre. The net profits from rents and sales within ten years will be upward of five millions dollars.

If an investment of three hundred and eighty-eight thousand eight hundred and eighty dollars, on three thousand acres of land, produces in three years a net profit of more than two millions dollars, or, in ten years, a net profit of five millions dollars, in an old and long-settled State, the prospect is, at least, fair, that twenty thousand acres of land, purchased and reclaimed at a fractional part of the cost per acre, and situated in a new State, destined soon to become one of the most progressive and prosperous in the Union, will yield equally good returns to the capitalist.

MONOPOLY OF LANDS.

The most serious objection urged against enterprises of this kind is that the tendency is to create landed monopolies, and to prevent free competition in the settlement and cultivation of lands donated to the State for the public benefit. Respecting the lands in question, it may be reasonably answered that there has been no prohibition to their cul-

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turns a current against the base of a dyke. If the change seems temporary, a network of willow boughs is woven along the face of the dyke for rods or for miles, as the case may seem to demand; rows of stakes are driven in every direction through that network, and basket breakwaters jut at frequent intervals into the aggressive stream. If the aggression is likely to prove permanent and powerful, then strong piles take the places of the slender stakes, and heavy stone and brick walls rise where the willow ones seemed insufficient. If, on the contrary, the water appears inclined to recede instead of advancing, and if the retrocession appears desirable, then Dutch patience and ingenuity assist the rising earth by every mode they can invent. Rows of willow stakes, patches of basket work, bits of low wall, coax deposits of sand and mud, and the appearance of vegetation. Whenever the reeds begin to appear, they are turned to account. The finer patches are cut and cured for the thatching of houses, mills, out-buildings, piles of drying bricks and turf, and for exportation to England. The coarser ones are bound in bundles, the size of a man's body, to assist in the laying of dykes, for the straightening the currents of streams, for retaining in bounds the mud gathered from the bottoms of the canals for manure, and for rotting into a dressing for the land already tilled. Sometimes bars make across the mouths of inlets or bays and leave shallow ponds or lakes of water neither fresh nor so salt as sea water, to be slowly filled up to tillable height by growth and decay of vegetable matter, or to be dyked and drained as Haarlem Lake was drained a few years ago."

tivation or settlement during the past twenty-two years, and yet they remain for the most part unimproved. Free competition has never been discouraged, either by Federal or State authority. The Congress of the United States, on the twenty-eighth of September, eighteen hundred and fifty, donated these lands to the State of California. By Act of the Legislature, in eighteen hundred and fifty-five, amended by Acts of eighteen hundred and fifty-eight and eighteen hundred and sixty-one, they were opened to purchase, in limited quantities, by whomsoever might choose to enter them according to the provisions of the law. It was found that individual enterprise was unable to accomplish the work of reclamation under the restrictions imposed, and, in eighteen hundred and sixty-eight, the Legislature passed an Act authorizing the purchase of these lands without limit as to quantity, the object being to offer such inducements to capitalists and organized companies as would secure to the State the advantages to be derived from the reclamation of large tracts, so as to adapt them to cultivation and settlement. Considering that nothing was done with them before, that since the passage of the Act of March twenty-eighth, eighteen hundred and sixty-eight, it has been the privilege of any citizen of the United States to purchase and reclaim as much as he chose to enter and pay for, that no exclusive rights were ever conferred by law, it seems unreasonable to complain that some of our citizens have manifested more enterprise than others in purchasing large tracts of these lands, and availing themselves of any advantages that may be derived either from the sale of them or from their reclamation and cultivation. If actual settlers have not had the means to secure and reclaim them, it is fortunate that capitalists have come forward to do that which past experience demonstrates would otherwise have remained undone. Governor Haight, although opposed on principle to the monopoly of large bodies of land by private individuals or corporations, very justly remarks, in his last annual message, that, "in the case of swamp and overflowed lands, a system of reclamation may, perhaps, render their concentration in large bodies, in the first instance, necessary; and, indeed, in the case of uplands, where large tracts have been acquired by purchase, the fault is chargeable to the system, and not to those who would avail themselves of it to purchase lands."

So far from resulting in the evils anticipated, the tendency of all enterprises having in view the improvement of these lands will be to render such lands, when improved, a source of profit to the State as well as to the projectors, by dividing them into small tracts and encouraging settlement upon them, by sales at low prices and on easy terms of payment; by leases on shares of the crops; by direct cultivation on well-organized systems, and by all other legitimate means that may be suggested by experience or by a community of interests.

To facilitate immigration to California of farmers, laborers, artisans, and other industrious classes, from England, Holland, Germany, and elsewhere, by furnishing them on their arrival with homes, on long credits and at low rates of interest, all necessary advances of provisions, seeds, and agricultural implements should be made, to enable them to meet the exigencies of the first year, and ultimately acquire such proprietary interests in the land as they may desire.

The anticipated profits could be derived in part from the direct cultivation, on a comprehensive scale, of the lands remaining unsold; from leases, rents, and sales of tracts suitable for immediate settlement; and in part from the growth of towns, villages, and local improvements;

from the progress of railroads, canals, and other facilities for travel and transportation; from the general advancement of agriculture, commerce, and manufactures, and from increase in the value of property throughout the State. As a principle, whatever has a tendency to promote the general prosperity and augment the rewards of labor, must give stability and profit to the investment of capital in legitimate enterprises. When the direct result is to increase the area of production, it is reasonable to anticipate that an investment in lands at the present low prices will prove both safe and lucrative.

IRRIGATION.

Irrigation is necessarily and inseparably associated with reclamation. It would be of comparatively little use to reclaim from overflow the swamp lands of the Sacramento or San Joaquin Valleys, without providing at the same time an efficient system of canals and ditches for irrigating them during seasons of drought. The low lands have an advantage, in retaining their moisture to a later period in the season than the uplands; but experience shows that their productiveness is materially affected by drought, and that no reclamation is perfect which does not include the means of irrigation. The swamp lands in the delta of the Sacramento and San Joaquin are very favorably located in this respect.

There is no antagonism between the two great schemes to which public attention is now invited—reclamation and irrigation. On the contrary, the success of one will materially benefit the other; and we have the most incontrovertible testimony that nothing adds so certainly and so largely to the wealth and population of a State, as the two combined. Systems of irrigation have existed as far back as the history of man extends. In Egypt the water was utilized for agricultural purposes before the building of the Pyramids; in China, before the birth of Confucius, and on the Continent of America, as far back as the records of the Aztecs extend. Cortes and his followers found extensive systems of aqueducts and canals in Mexico, and Pizarro similar works in Peru, the ruins of which may still be seen; and it is known to the writer, from personal observation, that there exist in Arizona the remains of hundreds of miles of irrigating canals and ditches, showing that long anterior to the Spanish explorations, what are now the deserts of the Gila were flourishing agricultural regions, abounding in populous cities.

The area of land subject to irrigation in Piedmont is a million and a half of acres, of which about one third is irrigated. The aggregate length of canals is one thousand two hundred miles, and the increased rental due to the system of irrigation is one million four hundred and fifty thousand dollars per annum. The irrigated districts contain an average of two hundred and sixty-nine inhabitants to the square mile, and show an increase of population of two hundred and seventy-eight thousandths, against one hundred and seventy-four thousandths in the unirrigated districts.

In Lombardy, the region subject to irrigation embraces an area of six million five hundred thousand acres, of which one fifth is irrigated. The aggregate length of the canals and local branches is four thousand five hundred miles, and the increased rental in the Milanese Provinces due to irrigation is one million three hundred and fifty thousand dollars, and in other Provinces one million four hundred and fifty thousand dollars per annum. It is estimated that since these great works were commenced, the expenditure of capital in their construction and improvement has exceeded four hundred dollars per acre—extending, however, through a series of several centuries.

In the Valley of the Po, embracing portions of Piedmont and Lombardy, one sixth of the total area, or one million five hundred and forty-seven thousand nine hundred and five acres, is irrigated, giving an increased rental of four million one hundred and fifty thousand dollars per annum. The increase of population, in the irrigated over the unirrigated districts, is fifty per cent. The districts of Mortara and Vigerano, formerly desolate wastes, now rival the Province of Milan in fertility and productiveness.

Italy furnishes, also, some encouraging examples of marsh, or swamp reclamation, among which one of the most prominent is that of the great marsh of Maremma, on the coast of Tuscany. The Lake of Castiglione, the greater part of which was formerly a desolate morass, has been so far reclaimed by massive embankments and systematic channels, that the available land within its original borders is now covered with rich corn fields and luxuriant pastures. There has been a marked improvement, also, in the health of the district, which was formerly noted for its malarial fevers; and it is worthy of remark that the same beneficial effects have resulted from the reclamation of other marshes, or lands, covered with stagnant waters, in various parts of Italy. In most cases the proper disposition of the flowing waters which debouch into the low ground is of no less importance than a judicious system of drainage. As soon as active circulation is established, the land becomes warm and productive, and the health of the district is improved.

Among the most remarkable examples of human industry are the canal systems of China. In no other part of the world have such wonderful results been accomplished with so limited a knowledge of engineering, and under so many natural obstacles. The traveler who visits this ancient Empire is constantly impressed with the enormous amount of labor expended upon works of irrigation. The inhabitants seem to be an amphibious race—living in water with as much facility as upon land. China proper has a length of one thousand four hundred and seventy-four miles, a breadth of one thousand three hundred and fifty-five, a coast line from Hainan to Liatung of two thousand five hundred miles, and contains eighteen provinces, with an aggregate area of one million three hundred and forty-eight thousand eight hundred and seventy square miles. The population is variously estimated at from three hundred million to four hundred million. Dr. Williams gives the density of population in the eighteen provinces at an average of two hundred and sixty-eight to the square mile, which would give a total aggregate of three hundred and sixty-one million four hundred and ninety-seven thousand one hundred and sixty inhabitants. The nine eastern provinces, comprising within their limits the Great Plain, have an aggregate area of five hundred and two thousand one hundred and ninety-two square miles, with an average population of four hundred and fifty-eight to the mile. The Provinces of Kiangsi, Nganhwui, and Chehkiang, are said to contain relatively eight hundred and fifty, seven hundred and five, and six hundred and seventy-one inhabitants to the mile; nor is this incredible, for, according to Captain Wilkes, one of the islands in the Fiji group contains one thousand inhabitants to the mile. With a better climate and more fertile soil than China, the capacity of California ought certainly to reach, without difficulty, a density of one hundred, which would give, to one hundred and fifty-four thousand square miles, fifteen million four hundred thousand inhabitants. There are under cultivation in China six hundred and fifty million acres of land, being an acre and four fifths to each inhabitant. In Belgium it is estimated that fifteen seventeenths of the total area of land is under cultivation, giving two acres to each person; and in England and Wales about the same.

The Great Plain of China, comprising the northeast part of the Empire, extends from the Great Wall to the confluence of the River Kan with the Yangtsekiang, a distance of seven hundred miles, having an average width of two hundred miles, and a total area of two hundred and ten thousand square miles—equal to the Plain of Bengal. Nearly the whole of this vast region is intersected by rivers, canals, and ditches—forming an immense network of irrigating systems and navigable highways, and supporting a population of one hundred and seventy-seven millions of souls. The Grand Canal is one of the most remarkable works in the world. By means of its river connections, it formed, before its partial destruction by the overflow of the Yellow River, nearly a continuous water communication from Peking to Canton, a distance of one thousand four hundred miles. The length of the canal proper is six hundred and fifty miles. Some of the embankments by which the waters are confined are gigantic specimens of ingenuity and labor—far surpassing in extent the works of the Mahometans in Northern India. The Yellow River and the Yangtsekiang drain the greater part of the alluvial plains through which the canal runs, and form the rich delta which supports the bulk of the population. Wherever it is possible to drain the land or turn the water upon it, for purposes of irrigation, the country is checkered with rice, cotton, wheat, and millet fields, with raised embankments and hedges, giving it the appearance of a continuous garden. The Province of Kiangsi, of which Nankin is the capital, is one of the best watered and most highly cultivated parts of the Empire. Almost every acre is turned to account. Grain, cotton, tea, silk, and rice are the staple productions. Nearly every city and village in the province can be reached by canals. In many places the surrounding country is lower than the beds of the canals, resembling parts of Holland, and subject to the same dangers from inundation. Chehkiang is another interesting province, noted for its productions of silk, cotton, lacquerware, etc., and its flourishing cities of Hangtcheoo, Shanghae, and Ningpo, its canals, reservoirs, and ditches, and the beautiful and highly cultivated aspect of the country. The neighborhood of Ningpo, which the writer had the pleasure of visiting a few years ago, resembles a rich and variegated garden; its terraced hills and plains are scarcely surpassed in rural beauty by the most highly cultivated districts of Germany. The Chusan Archipelago, comprising upwards of a hundred islands, lying outside the delta of the Yangtsekiang, is notable for its reclaimed salt marshes extending along the shores. Here we have some very interesting practical results from which to judge of the value of salt marshes. Each valley, extending down from the mountains, is fronted by a dyke bordering on the beach, which excludes the salt water, and is sufficiently high and strong to withstand the heavy surf which sometimes prevails. Canals and ditches of fresh water, having their source in the mountain streams, are conducted through the marshes, and distributed over them, when necessary. The chief products are rice, barley, beans, yams, and sweet potatoes. All the land is cultivated—the terraces extending, in many places, up to the top of the hills. The whole group sustains a population of three hundred thousand. During a visit to the treaty ports, it was the good fortune of the writer to see many other districts of interest, among which may be mentioned Foochow, in the Province of Fuhkien, noted for its vast amphitheatre of cultivated fields, and beautiful system of canals. The entire plain, in the neighborhood of Foochow, is dotted with towns and villages, intersected with canals, and checkered with fields of rice, cotton, indigo, and other agricultural products. From the hills, in the foreign quarter, may be seen, at a single sweep of the eye, a district of country, rendered productive by irrigation and reclamation, which sustains a greater population than the entire State of California, the lowest estimate being six hundred thousand souls.

In the neighborhood of Amoy and Swatow, the country is also highly cultivated, and the same ingenious system of utilizing the waters from the mountains is noticeable. Everywhere the landscape is variegated with a checker-work of rice fields and patches of sugar cane. The province of Kwantung, to the south, is one of the richest and most remarkable in China. The grand delta formed by the north, west, and east rivers, contains at least three hundred islands, all highly cultivated, and embraces within its area the famous city of Canton. Here are groves of bamboo, orange, and various tropical plants and fruits. Rice, cotton, and tobacco are the staple products. The area of country drained by the three principal rivers is not less than one hundred and fifty thousand square miles, of which a large proportion is artificially watered. Intercommunication is carried on by means of canals, which ramify through all the valleys. Few roads are seen, and no carts or other vehicles drawn by animals. A considerable proportion of the population live in boats, and there are thousands of families who derive their sole subsistence from aquatic fowl, mollusca, and fish, and whose ancestors for generations have never lived in a house. Many of their junks and sampans literally swarm with children, presenting the appearance of floating beehives.

Some idea may be formed of the careful mode in which the farming population economize space in the process of cultivation, from the manner in which they plant their principal cereals. Usually they sow their wheat, millet, and rice in rows, interspacing the plants with varieties which will mature at different periods, and reaping or uprooting the crop by installments. Nothing goes to waste. The entire agricultural area of the country is used for the growth of food, or such articles as are necessary for human use. There are no meadows or fields set apart for the support of horses and cattle within the limits of the Empire; consequently, the number of work animals is comparatively small. Rice is the staple article of food, upon which the great mass of the population subsist, and they display great ingenuity in its cultivation. The rice districts are minutely subdivided into plats or squares, inclosed by small dykes, and intersected by ditches. The water from the irrigating canals is conducted into these and carried alternately from one plat to another, or over an entire series, as occasion may require. Where there is a scarcity of water, the systems of saving by means of aqueducts and tanks are wonderfully effective; and the amount of labor expended in pumping and dipping up the water by hand labor is almost incredible. Tread-wheels, to which buckets are appended, are seen in many parts of the country. Two crops a year are generally produced; and, in order that no time may be lost between the seasons of planting, the water is sometimes turned in and fish culture is carried on—the fish being removed to the tanks or reservoirs when the land is needed. Everywhere in China may be seen the most striking evidences of patient industry and great natural ingenuity. Indeed, with so vast a population, and so limited a trade with foreign countries, it could scarcely be otherwise. The people must work or starve; and with all their labor, famines frequently occur, giving rise to those fearful rebellions against the constituted authorities which occasionally devastate whole provinces.

Whatever difference of opinion there may be as to the policy of encouraging the immigration of Chinese to California, none will deny that in some respects we might profit by their example. With all the advantages of a Christian civilization; with the experience of the world before us; with the powerful auxiliaries of steam and the mechanic arts to aid us, it must be admitted that our progress during the past ten years has not been commensurate with our opportunities. Looking at our snow-capped mountains and system of mountain lakes, our flowing streams, rich valleys, and incomparable climate, there is nothing in the present condition of the State to elicit the amount of admiration from mankind to which we are prone to aspire. Capital might be better employed than in loans upon town lots, where nothing is done to maintain their value; and the energies of public men could be devoted to more useful occupations than stock-jobbing in mines, gambling speculations in diamond fields, and personal intrigues for political preferment. The time has arrived for intelligent discussion of questions involving the welfare of the State and energetic action for the promotion of its material interests.

The irrigating canal systems of India are probably the most extensive and perfect now in existence. Colonel W. H. Greathead, Chief Engineer of Irrigation to the Government of the Northwestern Provinces of India, in a recent paper read before the Institution of Civil Engineers, in London, says:

"The most important sources of supply are the Ganges and Jumna Rivers, which include between them the larger part of the zone of the Plains. Their characteristics are identical. Both rise in eternal snows, and both receive large affluents before leaving the mountains. The drainage area of the Ganges is eleven thousand two hundred, that of the Jumna seven thousand eight hundred, square miles. Their greatest floods occur in July or August, and are respectively two hundred and thirty thousand and one hundred and sixty thousand cubic feet per second. In October the waters diminish sensibly, and by the middle of January they fall to four thousand and two thousand feet, at which they continue till the end of March, when they are enlarged by the melting of snows on the mountains, and thenceforward continually expand until supplemented by the southwest monsoon. Unfortunately, the period of lowest supply is that of greatest demand. The rivers leave the Himalaya on bowlder beds, sloping eight feet to ten feet in a mile, which, after a few miles, are replaced by beds of fine sand, wherein the course of the rivers constantly varies. Beyond the end of the bowlder formation the surface of the rivers is generally about forty feet below the adjacent country. The head works of the Ganges and the Jumna Canals have been fixed on the bowlder portions of the river beds in order to benefit by their stability, to obtain command of the whole country, and to profit by natural facilities for leading and regulating the supply of water. When all the water in the rivers is required, as in January, dams are extended across the perennial streams and rivers, and at times the whole of the visible water is turned into the canals. Temporary dams of crib work, bowlders, and shingle are found to be the most suitable for diverting the water; while masonry structures are preferred for the regulation of supply channels. The Ganges Canal is, perhaps, the largest work of the kind in the world. Its full capacity is six thousand five hundred cubic feet of water a second; the width of bed on the Solani Aqueduct, eighteen miles from the head, is one hundred and sixty-four feet, and the depth ten feet. The main channel is three hundred and forty-eight miles in length, and navigable throughout; the branches are three hundred and six miles in aggregate length, and the distributaries three thousand and seventy-one miles. A carriage road is kept up on all main and branch canals, and the banks are planted with timber trees. The flow of water in eighteen hundred and seventy-one was four thousand three hundred cubic feet, and seven hundred and sixty-seven thousand acres are watered, in five thousand and sixty-one villages. Irrigation commenced twenty-two miles below the head works, and was diffused over an area of three hundred and twenty miles long by about fifty wide. The sub-Himalayan drainage, which the canal crosses, is passed partly into, partly over, and partly under, the canal. The works in the upper part are chiefly constructed on block foundations, perforated with wells, by means of which they are sunk in running sand to a hard stratum. The Solani Aqueduct spans a valley two miles and a half in width; its foundations are supported by the pressure and friction of wet sand, and no subsidence has occurred. The slope of the country in the upper part of the canal being much greater than the canal beds, the surplus fall has been overcome by masonry ogee falls, which lower the levels of the canals in requisite degree; but, owing to the injurious action which occurs at the tail of ogee weirs, vertical weirs, with long crests, are being built on new canals. Measures are now in progress for reducing the rapidity of the current of the Ganges Canal, with a view to facilitate navigation; and a commencement has been made in leasing the water-power, for which no commercial demand has heretofore arisen. The earning of a cubic foot of water on the Ganges Canal in eighteen hundred and seventy and seventy-one, was forty-four pounds sterling per annum; on the Eastern Jumna, fifty-nine pounds. * * *

"The complete system, which, together with the Eastern Jumna, will water the whole country between the Ganges and the Jumna, will, probably, be carried out for five million pounds sterling, and return thirteen per cent. * * *

"At the end of the year eighteen hundred and seventy-one, upwards of a million acres were irrigated from existing works, which afforded a net return of one hundred and eighty-two thousand five hundred pounds sterling. The capital expended was two million seven hundred and forty-seven thousand pounds, and the net profit on the whole six and sixty-four one-hundredths per cent. When fully completed the cost of the undertakings will amount to about seven million five hundred thousand pounds, with a return of twelve per cent on the capital, when the canals are fully developed. A large system of canals has been projected for the irrigation of the Province of Oude, from the River Sardah, which it is proposed to extend to some part of the Benares division. In the Punjaub, at the foot of the Himalayas, there is a zone of forty inches of rainfall a year, bounded on the south by a belt where the rainfall is sixteen inches; the remaining country to the south is almost rainless. The principal canal in operation is the Western Jumna, an old Mahomedan work, which has paid nearly two million pounds clear profit, after repaying capital. The Baree Doab Canal, taken from the River Ravee, was constructed on the model of the Ganges Canal, and is gradually making way. There are profitable inundation canals on the Indus, the Chenab, and the Sutlej. The Sirhind Canal, taken from the River Sutlej, now under construction, will cost about two million pounds, and irrigate a country where rain is very scarce. It is calculated to pay about nine per cent. It is worthy of remark that, while the characteristics of irrigation in the Northwestern Provinces, Oude, and the Punjaub are much alike, they differ largely from the conditions current in Madras. In Northern India, irrigation is carried over the whole country; crops are watered both in Winter and in Summer, and irrigation affords the greatest benefit in Winter and Spring, when there is little or no rain; but in Madras, canal irrigation is only effected during the rainy season, when rivers are full, and is confined to the deltas at the mouths of the great rivers."

The paper concluded with a statement, interesting to the profession of civil engineers, that about two hundred and fifty engineers, of and above the rank of assistant engineers, are employed under the Indian Department of Irrigation, in developing the advancement and prosperity of the country.

I have thus attempted to show what has been done in countries less favored in many respects than California. It is surprising how persistently every measure suggested for the good of this State is opposed by a large proportion of its own citizens. No sooner is any movement made to encourage the investment of capital in works of internal improvement, than a cry is raised against monopolies. Somebody will hold large bodies of land, and oppress the people; the honest settler will be excluded from the soil; the capitalist, already too powerful, will make more money.

For my part, I sincerely hope that any combination of capitalists or others, who possess sufficient sagacity and public spirit to engage in the reclamation and irrigation of lands now comparatively worthless, will profit largely by their enterprise.

When placer and hydraulic mining were the prominent industries of the State, there was no lack of energy in adapting all natural auxiliaries to the extraction of the precious metals from their places of deposit. Enterprises of such extent and magnitude as those still to be seen in the mountains have never been even imagined elsewhere, much less carried into successful execution, and this under the most adverse circumstances.

The aggregate extent of mining ditches and canals built in California since eighteen hundred and fifty-one reaches the extraordinary figure of five thousand three hundred and twenty-eight miles, at an estimated cost of fifteen million five hundred and seventy-five thousand and four hundred dollars. Several of these ditches cost from five hundred thousand dollars to one million dollars. Many of them were constructed when labor was eight dollars per day, and lumber one hundred dollars per thousand feet.

The example is cited to show what can be done for the more permanent interests of agriculture and fruit growing. There is still a portion of the outlay already made which can be rendered available in some of the counties.

It is estimated that the Sacramento and San Joaquin Valleys contain an area of more than thirteen million acres of rich arable lands.

Under a judicious system of irrigation, by the adaptation of mountain reservoirs and streams to this purpose, it is difficult to estimate the extent to which this vast area of land could be rendered productive. There is scarcely an acre of the foothills that is not adapted to the cultivation of the grape. With a moderate supply of water, in seasons of drought, all kinds of fruit known to the temperate zone could be grown—olives, almonds, figs, walnuts, peaches, apples, apricots, etc.; and in sheltered situations, in the middle and southern counties, even the orange, lemon, and citron would flourish. Of the upland generally it is scarcely necessary to speak. All the cereals grow, from Red Bluff to San Bernardino, with a luxuriance scarcely paralleled in any part of the world; and to these might easily be added tobacco, cotton, sorghum, sugar cane, and various other valuable products. Imagination can scarcely conceive a richer country, or one abounding in such natural advantages of soil and climate.

To accomplish this great improvement, it is essential that cheap capital should be introduced.

The assertion that the southern counties of California are better suited to cattle raising than to agriculture is disproved by all experience. Persons interested in the preservation of stock ranges naturally incline to this opinion; but all unprejudiced testimony is against them. There is, in fact, no finer agricultural country in the world than that embraced within the limits of the San Joaquin Valley, and the Counties of Los Angeles and San Bernardino. The climate is unsurpassed for salubrity, the soils are rich and warm, and adapted to a greater variety of productions than any area of similar extent in the world.

IRRIGATION COMPANIES ALREADY IN THE FIELD.

One of the most important and comprehensive enterprises ever started on the Pacific coast, is that of the

CALIFORNIA CANAL AND IRRIGATION COMPANY,

A branch of which was organized some time ago under the name of the San Joaquin and King's River Canal and Irrigation Company. The chief promoters of the enterprise are Messrs. I. Friedlander, W. C. Ralston, W. T. Chapman, Miller & Lux, Luning, Charles Webb Howard, and other gentlemen, competent to carry through such an undertaking.

The eastern trunk of the proposed canal line commences at the southern extremity of Kern Lake, and extends northerly along the Sierra Nevadas as far as Red Bluff, in the Sacramento Valley, a distance of more than five hundred miles. This grand canal is designed both for purposes of navigation and irrigation. It will derive its supply of water from the great western shed of the Sierra Nevadas, comprising an area of more than twenty thousand square miles, drained by Kern, Tule, Cowille, King's, Fresno, Chowchilla, San Joaquin, Merced, Tuolumne, Mariposa, Mokelumne, and various smaller rivers and creeks south of Stockton, and north, by the Feather, Yuba, American, and Bear Rivers. The western trunk will probably commence at Summit Lake, with connections from Kern, Buena Vista, and Tulare Lakes, and passing in a northerly direction along the foothills of the Coast Range, form a continuous line of communication to Antioch, a distance of one hundred and sixty-three miles; thence up the western side of the Sacramento Valley as far north as Stony Creek, about two hundred miles, deriving its supplies from the watershed of the Coast Range, and from the Southern Lakes. The aggregate length of the two main trunks will probably fall but little short of nine hundred miles. The area of irrigable land in the two great valleys is estimated to be about fifteen thousand square miles, or nine million six hundred thousand acres. It is proper to remark that these statements and calculations are not derived from any data furnished by the company.

It will thus be seen that the plans of the San Joaquin Canal and Irrigation Company are conceived in an intelligent spirit, and based upon broad and comprehensive designs. In every point of view the subject has been carefully considered. Accurate maps of the whole country, showing the altitude of the mountains, the area of water-catchment, the river courses, and the extent of arable valleys, with cross-sections and levels every few miles through its entire length, have been made from the best authorities and from actual surveys. The experience of various countries, in which extensive systems of irrigation have been in successful operation for many years, has been consulted, and the best engineering skill secured. In the preliminary departments of this great enterprise much labor has been expended, and a large outlay of capital has already been made in the prosecution of the work.

It seems scarcely necessary to indicate the benefits that must accrue to the State, and to every material interest now projected or established within its boundaries, from the consummation of this important undertaking. Every intelligent mind must perceive at a glance that a system of works involving the highest order of engineering skill, and the most thorough investigation of the resources and conditions of the country, requires brain to conceive and means to execute. No work at all comparable to this, in magnitude of design and extent of its various ramifications, has ever yet been undertaken on the Pacific coast. Nor is there any which, as a whole, has so direct and important a bearing upon our agricultural interest, and the promotion of immigration. Indeed, the advantages of such an enterprise, when in full operation, would be difficult to over-estimate. It would render available for immediate cultivation several million acres of rich arable land, now comparatively worthless, owing to long periods of drought. Two successive Winters of abundant rain-supply have demonstrated the value of San Joaquin Valley lands; but past experience has shown that copious rains in the valleys cannot be depended upon. Settlers will not establish homes and farms upon tracts of land subject to periodical droughts, extending through a series of years. Two seasons of rain, followed by three or four years of drought, will never build up a country. Immigration from abroad will seek lands exempt from such disastrous contingencies.

The San Joaquin Valley has been open to settlement for more than twenty years; and yet, with an area of six or seven million acres of land capable of producing enormous crops, the total population engaged in the cultivation of the soil does not exceed two or three thousand. Of the lands susceptible of profitable cultivation by means of the proposed system of irrigation, there are at least three millions of acres, capable of producing thirty bushels of wheat to the acre, and adding, clear of all expense, from fifteen to twenty millions of dollars annually to the wealth of the State. But this is by no means the only source of profit to be derived from such an enterprise. It attracts population and insures settlement; it builds up towns and villages; it establishes trade and manufactories; it furnishes a constantly augmenting necessity for an extension of railroad systems; it encourages better systems of agriculture and the introduction of new staples, and more profitable employments for all classes of labor; it adds to the taxable value of property and increases the revenue of the State; in short, it promotes in every point of view the great cause of civilization.

It seems incredible that an enterprise of such importance, having so direct a bearing upon the material prosperity of California, should have elicited, up to this date, very little intelligent or candid consideration. Without the slightest investigation or knowledge of the subject, the plans and purposes of the company have been misrepresented; the projectors have been subjected to the grossest abuse, and a persistent determination has become manifest on the part of many who have no special interests at stake, to interpose every possible obstacle, throw discredit upon the enterprise, and impugn the motives of all connected with it. Why should this be? It is not the course pursued in other countries equally enlightened, and where there is less need of capital and population.

The present company does not propose to "divert or appropriate the waters of any running stream so as to impair the navigation thereof or to diminish its natural flow to the prejudice of those who are now entitled to the use of said water;" and they are prepared to submit to such limitations of powers in relation to charges for the use of water, tolls, etc., as the laws of Congress and of the State shall impose upon them. There is no danger, in any event, that the waters of the mountain streams, now running to waste, will be of any less value to the community when properly husbanded and controlled, or that lands now subject to drought and utterly useless for four years out of five, will present fewer attractions for settlers with available means at hand for irrigation than they have presented for the past twenty years in the form of arid wastes. It is thought by some that the State should undertake this enterprise; but the objections to its doing so are numerous and obvious. If the people want to do it individually why do they not attempt it? The truth is, such a work cannot or will not be done either by the State or by individuals. It is essentially an enterprise requiring the combination of capital, and all the security that can be offered. The stock is purchasable, and can be owned by any party desiring an interest. But no stock would be of value in an enterprise which did not control, under proper limitations, the elements essential to its success. Extensive systems of aqueducts, dams, weirs, embankments, and canals must be based upon some chartered privileges—otherwise it would be folly to expend money in their construction.

As a citizen of California, I feel a very deep interest in the success of this scheme. The consummation of the southern division will lead to that of the northern division. With the enormous expenditure of capital necessary for the prosecution of these great works encouragement will be given to the extension of their branches; reclamation of waste tule and other lands will follow, and there is no appreciable limit to the opening it will make for the profitable investment of capital on this coast. Every good citizen ought to lend it a helping hand; and none should condemn it without a full and fair investigation of its merits. Frivolous objections, founded in ignorance or jealousy, do an injury to the State. An unreasoning hostility to every public enterprise projected on this coast for the past twenty years has not proved remunerative. A more enlightened policy might be found more profitable.

Various irrigation schemes of less comprehensive design have been projected within the past four or five years, but none of them have yet been carried into operation. Among them may be mentioned the following:

THE LAKE TAHOE AND SAN FRANCISCO WATER WORKS COMPANY

Was organized several years ago. The proposed enterprise, when first brought to the attention of the public, was regarded by many as visionary and impracticable; but careful surveys, and actual data since obtained, have demonstrated that it is not only perfectly feasible, but that the cost will not exceed the original estimates made by the engineer, Mr. W. Von Schmidt. From this late report, it appears that Lake Tahoe is situated at an elevation of six thousand two hundred and twenty feet above the level of the sea, and covers an area of two hundred and forty square miles. Its greatest depth is one thousand five hundred feet.

The only outlet of the lake is the Truckee River, which flows during the driest time of the year, in ordinary seasons, eight hundred millions of gallons of water per diem, and for some months, during the floods, more than three times that quantity.

To guard against dry seasons, a dam has been constructed by the company, on the Truckee River, at the outlet of the lake, with suitable gates, for the purpose of storing the water, by preventing the floods from escaping out of the lake and running to waste, at the same time allowing the necessary amount of water to flow down the Truckee River for the use of mills and manufactories. The lake will fill to the capacity of this dam in one ordinary season. A second dam has been constructed three quarters of a mile below.

The quantity of water thus stored will be immense, and will be better understood by stating that one foot of water drawn from this lake in a year will give one hundred and thirty-seven million gallons per day.

The lake will be raised by the dam six feet above low-water mark, or about one foot above high-water mark; it will then give six times one hundred and thirty-seven million gallons, or eight hundred and twenty-two million gallons per diem, without interfering with the natural or ordinary flow of the Truckee River—that is, after the lake is once filled to the height of the dam.

To make the waters of Lake Tahoe available, the following work is necessary to be done:

The water from the dam at the outlet of the lake will flow down the Truckee River, three and three quarter miles to the company's second dam on the river, at which point it is diverted from the river into a canal to be constructed, six miles long, through which it flows to the entrance of the proposed tunnel at Hardscramble Creek, through the Sierra Nevada Mountains. The tunnel by this Hardscramble Creek route is twenty-six thousand four hundred feet, or five miles long. The water from the canal enters and flows through this tunnel, coming out on the west side of the mountains at a point a short distance above the Soda Springs on the South Fork of the North Fork of the American River.

For the supply of towns and cities, the water, after leaving the tunnel at or near Soda Springs, on the west side of the mountain, will flow down the granite bed of the American River, about twelve miles, where it will be taken from the river and conducted in a suitable canal a distance of about forty miles, to a point near Auburn, in Placer County, at which point it will enter a reservoir of convenient size, to be constructed for that purpose. Leaving this reservoir, the water will enter a large wrought-iron pipe, and by that means be conducted to the City of San Francisco, via Sacramento, Fairfield, Vallejo, and Oakland.

The canal to Auburn will have capacity to carry one hundred million gallons per day. The length of pipe from Auburn to San Francisco will be about one hundred and twelve miles, making the total distance of actual line of works to be constructed, to reach San Francisco, one hundred and sixty-three miles.

Estimated total cost of line to San Francisco, ten million dollars. The pipe is calculated to deliver at least twenty million gallons of water per day in the City of San Francisco, at an elevation of three hundred and seventy feet above the city base. Estimated sources of income: from the sale of five hundred million gallons of water daily for one year, for mining purposes only, expenses deducted, nine hundred and sixty-three thousand three hundred and twenty-six dollars and forty cents; from towns, cities, and mines, from the sale of four hundred million gallons of water daily, for one year, for mining purposes, expenses deducted, seven hundred and forty-six thousand six hundred and forty-two dollars and forty cents; from the sale of one hundred million gallons daily, for one year, to towns, cities, etc., five hundred and seventy-six thousand dollars—total, one million three hundred and twenty-two thousand six hundred and forty-two dollars. Deduct yearly expenses of line of works for towns and cities, two hundred thousand dollars—total net income, one million one hundred and twenty-two thousand six hundred and forty-two dollars and forty cents.

THE CALIFORNIA IRRIGATION COMPANY

Have in view the construction of a canal, for irrigation and water power, and the conveyance of water for manufacturing purposes; the canal to extend from the west side of the Sacramento River, near Red Bluff, to Cache Slough, Suisun Slough, and Suisun Bay, with the necessary feeders and branch canals for collecting and receiving the waters of the streams leading into the said river from the Coast Range and Clear Lake, and for using the same to the best advantage for the purposes specified and for irrigating the land between the river and the Coast Range, from the commencement to the termination of the canal or canals. Capital stock, ten million dollars, divided into one hundred thousand shares. Trustees, J. B. Frisbie, Eugene L. Sullivan, A. H. Rose, C. W. Howard, and Charles E. McLane.

LAKE TAHOE AND AMERICAN RIVER WATER COMPANY

Propose to conduct water from Lake Tahoe, by its natural outlet, through Truckee River, or by canal, flume, or pipe, as far as Squaw Valley; thence by tunnels or otherwise through the mountains, about three miles, to the American River, Placer County; to raise the superfices of said lake and use all water thereby accumulating in the tributaries of said river, from its highest branch to its confluence with the Middle Fork; to construct dams, flumes, or reservoirs, in said county, or elsewhere for the purpose of distributing or using water for mining purposes, irrigation, supplying towns and cities with pure water; to save the snow and rainwater of the Valley of the North Fork and all its tributaries, by a succession of dams throughout the whole extent of the ditch or canal along the whole divide between the North and Middle Forks of said river; to construct a dam across the lower outlet of Tadpole Lake, lying above Shirt Tail Cañon Divide, and in other places, for the purpose of holding water in store as a distributing reservoir to supply mines and miners with water for mining, domestic use, and irrigation; to construct a bed-rock flume on the Shirt Tail Cañon Divide, for the purpose of having water for general placer mining; to conduct water from the North Fork Divide over the Middle Fork Divide, on the mining districts of Last Chance, Deadwood, and to the North Fork and Middle Fork, and Long Cañon, and the mining camps, Batterby's Bluffs, Michigan, Forest Hill, Damascus, Iowa Hill, Yankee Jim, Brushy Cañons One, Two, Three, Four, and any other mining districts or camps; to sell, let, or dispose of all or any of said water in such quantities, and at such rates or prices as said company may fix; to use any canal constructed by said company for the purpose of navigation, and for carrying freight or passengers for hire, with the right to collect such tolls on said canal or canals as said companies may think proper; to save up and dispose of all water from the melting of snow and natural watersheds which may be found from Lake Tahoe to Auburn, near to the confluence of the North or Middle Forks, or further. Capital stock, twelve millions of dollars, divided into one hundred and twenty thousand shares. Trustees—Robert Battersby, R. S. Perrin, F. C. Du Brutz, Henry Hughes, and S. R. Randolph.

THE TUOLUMNE RIVER IRRIGATION CANAL

Is an important enterprise projected by John Burcham, M. A. Wheaton, and Charles Elliott, present owners of a dam and water-right on the Tuolumne River. These gentlemen propose making an application to the Legislature, at its next session, for authority to enable the people of Stanislaus County to vote upon the question of issuing three hundred thousand dollars in county bonds to carry the work into effect. As a consideration for the issuance of the bonds, the gentlemen named propose to construct from their present dam, near Lagrange, to the San Joaquin River, two canals, or aqueducts, for irrigation and such other purposes as the same may be useful for; one of the said canals to start from the northerly and the other from the southerly side of Tuolumne River, and both to be constructed within two years from the date of the issuance and delivery of the first bonds, and to be at least thirty feet in width and not less than four feet in depth from the top of their embankments to their bottoms, or of sufficient capacity to fill a ditch of these dimensions, with a grade of eighteen inches to the mile. Instead of building two canals for the first fifteen miles from the dam, the owners may, if they prefer, build one canal of double the capacity named, from the dam down one side of Tuolumne River, for any distance not exceeding fifteen miles, and then carry a due proportion of water, by any suitable means, to some point across the river, from which the other canal may be constructed to the San Joaquin River.

This enterprise, if carried into effect, will be of inestimable value to Stanislaus County. It will render productive at least five hundred thousand acres of rich valley land, now subject to drought, between the Merced and Stanislaus Rivers.

THE CLEAR LAKE WATER WORKS COMPANY

Offer to deliver, in a reservoir provided by the City of San Francisco, at an elevation of three hundred and eighty feet, forty million gallons of water per day. The company will give the city the privilege of taking from its sources of supply, at Clear Lake, in addition, two hundred and sixty million gallons per diem, and will construct the conduit from the source of supply to the heights north of Benicia, of sufficient capacity to carry three hundred million gallons daily; said water works to be fully completed, conveyed, and delivered to the city within two years from the time of signing the contract therefor. The city and county, in consideration of building, coupling, and furnishing, and delivering to the city the said water works and water, as above mentioned, to pay the company eight millions of dollars, as follows: eight thousand bonds of the denomination of one thousand dollars each, payable in thirty years from date thereof, bearing interest at six per cent per annum; the bonds to be delivered as the work progresses. The work to be divided into sections, as may be agreed upon, and when each section shall be completed the company shall receive seventy-five per cent of such proportion of eight million dollars of bonds as such section shall bear to the whole number of sections in the works; the balance, of twenty-five per cent, to be paid when the works shall be finally completed and delivered to the city. The work shall be done subject to the approval of an engineer selected by the city.

CONCLUSION.

Unlike ordinary private enterprises, such comprehensive works of irrigation and reclamation as are now proposed, affect directly almost every interest connected with the material advancement of the State. Among these may be enumerated: first, the promotion of immigration; second, the direct increase of production and taxable property; third, the increase of internal improvements and commerce; fourth, the increase of shipping; fifth, the increase of our import and export trade; sixth, the increase of manufactures and various kinds of domestic industry. It is to be hoped that the next Legislature will give them such encouragement as may be consistent with good policy and the general welfare of the State.

ANNUAL MEETING

OF THE

STATE AGRICULTURAL SOCIETY FOR 1873,

BEING THE NINETEENTH ANNUAL MEETING.

The nineteenth annual meeting of the State Agricultural Society was held in the east half of the Pavilion, on the twenty-second of January, eighteen hundred and seventy-three. It was called for twelve o'clock M., but it was ten minutes to one o'clock before it convened. From ten o'clock to the time of meeting two clerks were kept busy in the office of the Secretary, filling receipts of membership for those who desired to join the society, and several hundred new members were added. As the hour of the meeting approached, and after it had passed, until the society assembled, the halls of the Pavilion and the front porch were thronged with members, new and old. There was no lack of ticket peddlers, and the scene reminded one of a hot political convention.

The society was called to order by the President, Charles F. Reed, who said: "We have assembled here for the purpose of electing a Board of Directors and a President for the ensuing year, and also to have the Board of Directors render an account of their stewardship during the past year. The first business properly in order is the reading of the report of the Board of Directors. Is Mr. Hoag present? Our Secretary has the report, and he will be here presently."

REPORT OF THE BOARD OF DIRECTORS.

A member moved that the reading of the report of the Board of Directors be dispensed with, and that the society proceed to the election of officers.

William Gouverneur Morris, of Napa—As President of one of the District Agricultural Societies of the State——

Joseph A. Conboie, of Sacramento—I rise to a point of order. A motion has been made and seconded, and it must be stated by the Chair before any one can speak upon it.

The Chair—The gentleman is right. A motion is made and seconded that the reading of the report of the Board of Directors be dispensed with until after the election of officers. Are you ready for the question?

Morris—Mr. President: I have been sent here as a delegate from one of the interior counties of the State—from the district comprising

Napa and Solano Counties—and we gentlemen from the interior came here for the purpose of receiving all the enlightenment that we can get on the various subject matters that are to be found in the State Society, and it occurs to me that the motion of the gentleman is rather premature, for this reason: we understand, sir, coming here as strangers, that there are two gentlemen who will be presented to this society for its suffrages for the distinguished office of President. We have heard it stated, since we came to this city, that it was the intention of certain parties interested against the welfare and success of this society——

A member—I call the gentleman to order. He has no right to impugn the motives of any member of the society.

Chair—The gentleman will confine his remarks to the question under consideration.

Confusion, and calls of "Question!"

Morris—I respectfully ask leave of this society to be heard; and I do not intend, sir, to infringe upon any parliamentary usages, or say anything that will hurt the feelings of any man. Nor do I come here to impugn any man's motives; but if my brother who was so quick upon his shoes would listen, he would see that I stand here not in the interest of any one man, but in the interest of the great interest of the State—the State Agricultural Society. [Applause.] Now, sir, it makes no particular difference who is elected President of the society, so long as we get a correct man at the head.

A member—I call the gentleman to order.

Dougald Gillis—I move that the gentleman be allowed to speak.

Morris—I do not intend to intrude my remarks on this body, but if it is intended to use the gag law upon the men who came here as representatives then I will take my seat.

Calls of "Question!"

The Chair—Gentlemen will keep order. Mr. Morris has the floor.

Marcus D. Boruck, of San Francisco—No one desires to have liberty of speech on this floor more than I do. I do not want to see any gag law used; but I do not want to see any man stand on this floor and talk against time, and I move that every gentleman be confined to five minutes in speaking.

The Chair—I can hardly entertain the motion now. Will the gentleman confine his remarks to the subject under discussion? He would probably have got through by this time were it not for interruptions. Mr. Morris has the floor.

Morris—Now, Mr. Chairman, it is not my intention to weary out this audience, or to talk against time. Certainly, sir, these delegates who came from a distance and are in attendance upon this association to-day, much more desire to get home than the citizens of Sacramento, who are here right at their own doors. But I must get back to where I started. Since I came into this town I have heard that there were certain parties who want to have the Agricultural Society moved to San Francisco, and to that I am opposed. The whole delegation—

Boruck—I call the gentleman to order. What is the question before the house?

Morris—I wish to state the reason why that report should be read. I have endeavored to get at it, and I will consume the time of this body but one moment longer. If there is anything in the report of the Board, either direct or remote, which will justify such an idea, or which will convey to the minds of those here that any member of the State Board, from the President down, has any such intention, we want to know it, and would prefer that the report be read. It is a matter of great moment, and I do not think any harm could arise from the reading of the report.

Calls of "Question!" "Question!" "Question!"

H. M. LaRue, of Sacramento, agreed with Morris, and would like to hear the report read. We ought to know what the officers had done. It is unprecedented to go into an election until after the report has been read, and I hope the common sense of the members will not let a little feeling override them in their actions in this respect. Let us proceed deliberately. Let us know what the society has been doing, and then proceed to the election. This thing is attempted for some purpose, but I do not know what for.

The Chair—It has been moved and seconded that the reading of the report of the Board of Directors be dispensed with until after the other business has been disposed of. As many as are in favor of the motion will say "aye." [The ayes and noes were called viva voce.] The ayes have it, the motion is carried. [Applause.]

Morris moved that a committee of three be appointed on credentials.

Boruck said that there were doorkeepers at the doors who kept out all but those who were entitled to enter.

The motion was withdrawn.

ELECTION OF PRESIDENT.

Samuel Poorman—I move that we now proceed to the election of President.

The motion prevailed.

The Chair—Judge McKune, will you take the chair?

Judge J. H. McKune came forward and took the chair.

Dr. J. F. Montgomery—I was going to move for the appointment of tellers.

The Chair—I will appoint tellers without a motion.

Gillis—I move that two tellers be appointed.

The Chair—I will appoint three. The first thing in order is nominations for President of the Agricultural Society for the ensuing year. I will hear nominations.

Grove L. Johnson—I desire to place in nomination for the position of President of this society a resident of Sacramento, a farmer, and a citizen of the State, who has always performed the duties of his office in connection with the society with credit to himself, and we will all be proud to say that we voted for him. I nominate R. S. Carey, of Sacramento, for President. [Applause.]

A member—I move that the nominations close.

Gillis opposed the motion.

Morris—Do not get impatient. I will not detain you but a moment, Mr. Chairman. I did not intend, sir, to make this motion myself, having expected that it would be done by an abler and more worthy person; and I have looked around the hall to see whether he is present, and not being here, before these nominations close, I rise for the purpose of placing in nomination for President of the society for the ensuing year, the Honorable Charles F. Reed, of Yolo. [Applause.] It is not necessary for me to pass any panegyric upon the efforts which he has displayed for the welfare of this society during his long incumbency as President thereof. These acts and these deeds speak for themselves. Coming into the society years since, when it was struggling and burdened with a debt of some thirty-seven thousand dollars, through his experience, through his industry, and aided by the counsels of those that the society brought around him, the whole of that debt has been paid, and the property that now belongs to the society is worth some fifty thousand dollars, that is incumbered with a trifling debt incurred during last year for necessary improvements. It is a monument of which the President may well be proud. He has the confidence of the farming interest of the State. He is a gentleman above reproach; and I trust that the society will to-day indorse him by reëlecting him to the position which he has filled for so long a time. [Applause.]

The Chair—There being no further nominations, I will declare them closed.

Reed—Mr. President: I thank the gentleman who so very kindly placed my name in nomination to serve another term. I have at each successive election endeavored to induce the members of the society to select some other proper person to preside over them. I have for nine successive years been nominated by acclamation. I have devoted nine years of faithful service to the interest of this society, and I feel glad that the members now have taken it upon themselves to make a contest and select some other good man. I feel, I say, rejoiced, and no man would more heartily support R. S. Carey than I myself. [Applause.] Therefore, sir, I withdraw my name from the contest. [Applause.]

F. A. Hornblower—I move that Carey be elected by acclamation.

Chris. Green—Before that vote is taken, I move that a vote of thanks be tendered to Mr. Reed for past services rendered to the society, as he has declined the nomination.

Green's motion prevailed unanimously.

Boruck—The election must be by ballot, and I move that the Secretary cast the ballot in favor of Mr. Carey.

The Chair—There being no objections, the Secretary will cast the ballot.

Conboie—There have been no tellers elected.

The Chair—There are none necessary. Gentlemen, it gives me pleasure to announce to you that the Secretary will so record the vote, and that R. S. Carey is elected President of the Agricultural Society for the ensuing year.

Calls for "Carey!" "Carey!" "Carey!"

The Chair—Gentlemen of the meeting: It gives me pleasure to introduce to you R. S. Carey, your President elect.

Carey—Gentlemen: I am not a hand to make speeches, and you need not expect one from me. I am under many obligations to you all for the office you have given me, and I will fulfill it like a man. What I lack in making speeches I will make up in work. I hated to run against this man Reed, who is my friend, but I could not help it; and there is not a man in the State of California that I would vote for as soon as I would vote for him. He has been accused of what he is not guilty of, and I say he is free from blame; and for anything that the Board has done during the last six years, I will take one ninth of the blame, as I was a member of the Board during the time. Anything that we did that is wrong, we are sorry for, and will try and do better hereafter. As President, I will fulfill the duties of the position the best I know how; and I hope that when I go out of office I will have as many friends as I have now. I will make every man of you go into his place, and say to the men of Sacramento that I have cursed you time and again when you have done wrong; but I am as good a friend to you as any one. I am under obligations to you all; and I have no malice against those who voted against me. I will treat you all alike, and will do the best I can for all, from the man who shows a pincushion to the man who shows a steam plow; and from the man who shows a horse that can trot in five minutes to the man who shows a horse that can trot in two minutes. I have been among you twenty years, and this is the proudest moment of my life. [Applause.]

McKune—At the request of Mr. Carey I will continue to preside if there is no objection. I will appoint as tellers W. G. Morris, E. B. Ryan, and Dan. Earl.

CAREY RESIGNS AS A DIRECTOR.

The Chair—There are three Directors to be elected, and a fourth to be elected to fill the place of Mr. Carey. The three fill full terms and the fourth a short term.

It was moved and carried that the fourth Director be elected at once, and that the man for the short term be so designated on the ballot.

The Chair—The resignation of Mr. Carey is first to be acted on.

The Secretary read it as follows: "To the members of the California State Agricultural Society: Gentlemen—I hereby tender my resignation as a member of the Board of Agriculture. R. S. Carey."

The resignation was accepted.

ELECTION OF THE FOUR DIRECTORS.

The Chair—Gentlemen of the meeting: After consulting with the President elect and the tellers, we have concluded to invite you all to retire into the other room, and as you come in again the tellers will be prepared to receive your ballots, you showing at the same time your tickets. After the nominations are closed you will so retire.

E. F. Aiken, of Sacramento—I would like to place in nomination for one of the Directors, Dr. W. S. Manlove, of Brighton, Sacramento County. It is not usual for me to go into a discussion on the character of a man. He will act for the true interest of the agriculture of the State.

Mr. Gillis—I place in nomination, Fred. Cox. I think I can do so as a member of the society. I do not understand why I am hissed down. [The speaker referred to the confusion that prevailed when he and several others occupied the floor at once.—REPORTER]. I think he is a gentleman that any man can feel proud to vote for, and he will acquit himself as well as anybody.

After seating himself he arose and said: I will state for the benefit of the society that he is a partner of the firm of Cox & Clark. [Laughter].

Chris. Green—I wish to place in nomination Mr. M. D. Boruck, of San Francisco.

Robert O. Cravens, of Placer—I place in nomination T. L. Chamberlain, of Placer County. He has been a member of the society since its first organization, and has been several years a member of the Board of Directors, and has been an efficient and hard-working member. The agriculturists of that part of the State have long been without representation on the Board. He is one of the pioneer farmers of the State, and is known to all the members of the society. A worthier man could not be selected. I nominate him to fill the unexpired term of Mr. Carey.

G. L. Johnson—I desire to place in nomination for one of the full terms, Marion Biggs, of Butte, formerly of Sacramento. Everybody in Sacramento and everybody in the State knows old Major Biggs, and everybody knows that he is a good man.

E. I. Robinson moved that the nominations close.

Col. Younger—I desire to put in nomination, William P. Coleman, of this city, a gentleman who has served as a member of the Board for many years, and who has filled his place with as much ability as any man who has ever served on the Board, and the trouble is, it is difficult to do without him on the Board, and particularly at our annual exhibitions, and I desire very much that his name come before the society and that he be elected.

The members of the society withdrew into the main hall, and as they passed back they deposited their ballots with the tellers.

The result was as follows: Cox, three hundred and eighty-one; Manlove, fifty-four; Boruck, two hundred and ninety-five; Coleman, eighty-eight; Chamberlain, three hundred and eighty-four; Biggs, three hundred and seventy-four; J. K. Doak, fourteen; scattering, thirteen.

The Chair—Messrs. Cox, Boruck, and Biggs are elected Directors for full terms, and Chamberlain for the short term. [Applause].

On motion, the election of these gentlemen was made unanimous.

THE CASE OF DIRECTOR ROSS.

A member inquired in regard to Director Charles H. Ross. He had been elected in June last by the Board of Directors to a position in the Board, to fill a vacancy caused by the resignation of H. R. Covey. He inquired whether the election lasted until the meeting of the society, or for the balance of the term.

Colonel Younger read Section five of Article IV of the Constitution, which says that the Board of Directors "shall fill all vacancies occurring between elections." He said the matter was rather unclear, and to settle it moved that the election of Ross be confirmed by the society, and that he serve for the balance of the term.

The motion prevailed.

EXAMINATION OF THE SOCIETY ACCOUNTS.

Green moved that a committee of three be appointed to examine the books of the association, and report to the Board of Directors in ten days.

The motion prevailed, and the Chair appointed on that committee, Chris. Green, Daniel Earl, and Julius Wetzlar.

Edward B. Willis moved that the reading of the report of the Board of Directors be dispensed with, and that it be placed on file together with the financial report. Carried.

On motion the society adjourned *sine die.*

FIRST MEETING OF THE NEW BOARD OF DIRECTORS.

SACRAMENTO, January 22d, 1873.

Board met at half-past seven o'clock P. M. President Carey in the chair. Directors Boruck, Chamberlain, Cox, Biggs, Ross, and Younger present.

On motion of Younger, R. T. Brown was nominated for Treasurer and elected unanimously.

The President stated that the next business was the election of Secretary, and, on motion of Younger, it was decided to elect but one Secretary.

Boruck moved to fix the Secretary's salary at two hundred dollars per month.

Ross moved to amend by making the salary two thousand dollars per year.

The question being taken, the latter motion prevailed, and the salary was so fixed.

Boruck nominated Robert Beck for Secretary, who was unanimously elected.

It was moved that the Secretary be instructed to notify the members of the Board of any called meetings, at least four days before such meeting, stating the object thereof.

Col. Younger offered the following resolution, which was carried:

Resolved, That this Board, appreciating the services of Mr. I. N. Hoag, as Corresponding Secretary during the last year, and other services rendered to bring the Fairs to their present high position, therefore the Board tender him their thanks for his able and efficient services.

Boruck moved that the Fair for eighteen hundred and seventy-three commence on Monday, the fifteenth of September, and continue six days, including the twentieth.

Carried.

Boruck moved that when the Board adjourns it adjourn to Wednesday, the nineteenth of February, at seven o'clock P. M.

Carried.

Adjourned.

STATE BOARD OF AGRICULTURE FOR 1873.

PRESIDENT.

R. S. CAREY	Yolo (P. O. Sacramento.)

DIRECTORS

Whose terms expire at the annual meeting in 1874.

T. L. CHAMBERLAIN	Placer County.
C. H. ROSS	Sacramento.
C. YOUNGER	Santa Clara.

DIRECTORS

Whose terms expire at the annual meeting in 1875.

E. MILLS	Sacramento.
C. T. WHEELER	Sacramento.
ROBERT HAMILTON	Sacramento.

DIRECTORS

Whose terms expire at the annual meeting in 1876.

M. BIGGS	Butte County.
M. D. BORUCK	San Francisco.
FREDERICK COX	Sacramento.

Secretary	ROBERT BECK, Sacramento.
Treasurer	R. T. BROWN, Sacramento.

AGRICULTURAL ORGANIZATIONS.

The State Board of Agriculture have always favored the organization of local agricultural societies, believing they would tend to stimulate local pride and local improvement. The last Legislature, acting upon the same idea, appropriated money to all the societies then organized, to assist them in the payment of premiums, and required them to report their transactions to the State Board. Some of these societies have made a good beginning, and valuable reports, while others seem to want experience to render them more practical, and to the better record the information gained. The reports, so far as made, will be found in the following pages.

TRANSACTIONS OF THE

CALIFORNIA

Vine Growers' and Wine and Brandy Manufacturers'

ASSOCIATION,

FOR THE YEAR 1872.

REPORT.

OFFICE CALIFORNIA VINE GROWERS' AND WINE AND BRANDY
MANUFACTURERS' ASSOCIATION, SACRAMENTO.

To the honorable the California State Board of Agriculture:

GENTLEMEN: In accordance with law, we herewith hand you the report of the Board of Directors of the above-named association for the year eighteen hundred and seventy-two. In it will be found much of interest to all those engaged in the industries growing out of the cultivation of the vine, as well as to the citizen who takes an interest in the development of the material industries of the State.

Respectfully,

G. G. BLANCHARD, President.

I. N. HOAG, Secretary.

BOARD OF DIRECTORS.

PRESIDENT.

G. G. Blanchard	El Dorado.

VICE PRESIDENTS.

J. R. Snyder	Sonoma.
J. R. Nickeson	Placer.

TRUSTEES.

A. Schell	Stanislaus.
B. N. Bugbey	Sacramento.
W. S. Manlove	Sacramento.
Prof. E. S. Carr	Alameda.

TREASURER.

J. H. Carroll	Sacramento.

SECRETARY.

I. N. Hoag	Yolo (Post Office, Sacramento).

STANDING COMMITTEES.

ON CULTIVATION OF THE GRAPE AND PRUNING THE VINE.

I. N. Hoag	Yolo.
Robert Chalmers	El Dorado.
George West	Stockton.
A. D. Wilson	Los Angeles.
J. R. Snyder	Sonoma.
B. N. Bugbey	Folsom.
J. R. Nickeson	Lincoln.
G. N. Swezy	Marysville.
L. J. Rose	Los Angeles.
Dr. J. Strentzel	Contra Costa.

ON WINE MAKING AND CLARIFICATION OF WINE.

A. Haraszthy	San Francisco.
O. W. Craig	Sonoma.
George Gozinger	San Francisco.
Matthew Keller	Los Angeles.
B. N. Bugbey	Folsom.
B. D. Wilson	Los Angeles.
Robert Chalmers	Coloma.
J. R. Nickeson	Lincoln.
George West	Stockton.
J. Strentzel	Martinez.
Jacob Knauth	Sacramento.
A. Eberhart	San Francisco.

ON MANUFACTURE OF BRANDY FROM THE GRAPE.

General Naglee	San José.
George Johnston	Sacramento.
L. J. Rose	Los Angeles.
Robert Chalmers	Coloma.
O. W. Craig	Sonoma.
Charles King	St. Helena.
B. N. Bugbey	Folsom.

ON CASKS, VESSELS, PRESS, AND MACHINERY.

George Johnston	Sacramento.
J. R. Nickeson	Lincoln.
Carl Strobel	Sacramento.
Robert Chalmers	Coloma.
Samuel Dodd	Lincoln.

ON STATISTICS.

George Johnston	Sacramento.
George W. Applegate	Placer.
I. N. Hoag	Yolo.
L. R. Chamberlain	Placer.
S. L. Wilson	Sacramento.
Joel Clayton	Clayton.

ON MEMORIAL TO CONGRESS.

B. D. Wilson	Los Angeles.
H. Larkin	El Dorado.
L. M. Schrack	Mokelumne Hill.
George Johnston	Sacramento.
A. Hewel	Knight's Ferry.
Robert Chalmers	Coloma.
I. N. Hoag	Yolo.
A. Schell	Knight's Ferry.
Samuel Dodd	Lincoln.
Mr. Caldwell	Sonoma.
S. L. Wilson	Sacramento.

ON THE BEST VARIETY OF GRAPES FOR GENERAL USE.

J. R. Nickeson	Lincoln.
George West	Stockton.
J. J. Ott	Nevada.
Joel Clayton	Clayton.
Samuel Dodd	Lincoln.
D. Chamberlain	Yuba.
Dr. Lockwood	St. Helena.
C. G. Carpenter	Diamond Springs.
I. N. Hoag	Yolo.
John H. Carroll	Sacramento.

ON CLASSIFICATION OF GRAPES.

J. A. Lockwood	St. Helena.
J. Strentzel	Martinez.
J. R. Nickeson	Lincoln.
J. DeBarth Schaub	Los Angeles.
I. N. Hoag	Yolo.
J. H. Carroll	Sacramento.
William McP. Hill	Sonoma.
George Johnston	Sacramento.

ADDRESS OF G. G. BLANCHARD,

DELIVERED BEFORE THE VINE GROWERS' AND WINE AND BRANDY MANUFACTURERS' ASSOCIATION, SEPTEMBER TWENTY-FOURTH, EIGHTEEN HUNDRED AND SEVENTY-TWO, AT THEIR FIRST ANNUAL FAIR.

Ladies and Gentlemen, and members of the California Vine Growers' Association:

While I feel flattered by the invitation which brought me here, I am not credulous as to its propriety. The subject of wines and brandies is not altogether to me a familiar one; yet I have convictions, well selected and permanent, in relation to the proper and appropriate occupations of peoples and soils, physical productions of labor, and the necessary connections of the laboratory and the field. This age is one of enterprise, adventure, and speculation. No other has been characterized with such a diversity of inquiry and action. Every form and nature of material existence is the subject of scientific investigation, and every department of enjoyment is guided by intelligence. Mind controls them all. Wines—the product of the vine—at the present time in California, have great importance. The subject has a general interest, and can only be localized by the exterior boundaries of the nation itself. It is staple, and invites and commands attention. As a source of State wealth, in five years it will rival any other, notwithstanding the want of adequate knowledge in the varieties and treatment of vines and their juices. The best modes of the culture of the one and the manufacture of the other are yet undeciphered problems. The vine grower of California has scarcely as yet been directed in his labors by experimental tests. The mysteries of the science of vine growing and wine making within our new field are every one treacherous mysteries still. We only know that any and every variety of grape grown from the twenty-first to the fifty-second parallel are matured with singular perfection within our State lines. We have every variety of soil existing in the best wine districts of France—the volcanic calcareous, the granite, slates, and traps; and a climate congenial to the aroma and bouquet peculiar to choice wines. It is a proverb of ancient origin, "That gold springs up where the root of the vine descends." Our round-breasted hills, nobly undulated, fair to the rising and setting sun throughout the mountain counties, offer unparalleled inducements to the vine grower. More than one thousand and seven hundred years ago the author of the "Georgics" said:

> "Bacchus loves the hills."

Scarcely a rod of all this vast domain is unqualified for the growth of the superior varieties of wine grape. A reference to the table of temperatures and geological formation of those districts celebrated for rich and delicate flavored wines, in comparison with our own, shows that

California possesses both a soil and climate in a thousand square miles of her area equal to any.

In the States east of the Rocky Mountains, none but the indigenous vine can be profitably and successfully produced. Experiments have been going on for the last thirty years in most of those States, which have demonstrated that the vine of foreign importation is unprofitable in all, and in most an entire failure. It is also established, that while California possesses all of the advantages of the most favored localities for the cultivation of the vine, it has an immunity from the inflictions incident to it in all other countries. For everywhere except here is it subject to blight, mildew, rot, or shrivel. The present season was early supposed to be one of disaster to many of the vineyards within our State, but time has proved that the damage was but conjectural. Soil and climate have repaired the injury, and the season now drawing to a close is one of equal prosperity in this branch of industry to any of its predecessors. It is, furthermore, true that the grape can be produced here with fifteen per cent less labor than in any other district now devoted to its culture.

A belt of country, ascertained by long trial to be from one to five miles in width, and one hundred and seventy-five miles in length, including the islands of Lake Erie, in New York, and Ohio, is peculiarly adapted to the culture of certain species of grape, and in this locality wine of a very popular flavor and salutary consistence is produced, finding a ready market at remunerative prices. Kelly's Island is perhaps the choicest spot within this belt, and the vineyard at Brockton the second in excellence. The Concord grape arrives at great perfection along the Missouri River, below the forty-second parallel, and produces a fair and merchantable wine.

But it is only here and there that a spot can be found which can properly be denominated vine land; while with us, from the Sierras to the ocean is one vast zone whose golden soil invites the vine grower to labors of occupation and production, and now at important intervals the vintager to its golden clusters, although but in its twentieth year of age. The field is wide and promising—the inducements fraught with weight and considerations of dazzling success. The two controlling desiderata in vine growing are soil and climate; the varieties which best adapt themselves to these can only be ascertained by trial or a resort to the laboratory. It is important to the vineyard proprietor to be advised in advance of his blind trial or experiment, the fitness of his selected acres for the use to which he designs them.

The producer of cereals and annual plants may afford to wait the result of an experiment, but where it takes four or five years to mature a plant to its producing stage, and as many more to prove its various product, the quality of soil and propriety of climate become matters of the first importance.

The expense of growing an acre of vines to a bearing age is from two hundred dollars to six hundred dollars, while a test in other products may be made at trifling cost. Therefore, until the laboratory and the vineyard are united, and the results of one determine the locus of the other, we shall be burdened with expense, our wine product be a subject of vexatious disappointment and uncertainty, and our reputation as wine manufacturers sullied and doubtful.

The different natures and origins of wealth in a Government, and the fostering of those natural sources, should be the first care of the Government itself—the controlling idea of the law maker. By natural sources I mean those which spring directly from the soil.

To ascertain what, of all the productions of nature necessary to the want or pleasure of peoples, is most conducive to this wealth, is the peculiar province of him who seeks to acquire it from such natural sources. All wealth exists in the nature of things, but is dormant until brought out by the industries.

Industry is but the intelligent employment of natural agents, and all wealth is evolved by such employment when value, instead of nature of product, is the prime consideration.

Not a hundred years ago persons were executed by the French Government for daring to convert corn land into pasturage, when from an incomparably less amount of labor, and upon the same area, twenty dollars worth of butcher's meat could be produced to ten dollars worth of maize. The kind of use to which the soil should be devoted is safest in the hands of him who tills it.

All production is regulated by man's necessities; and formerly, when the means of transportation were wanting, or beyond the producer's ability to command it, the wants of the consumers in the vicinage governed the character of the product. But now, in our time of giant lightning-power and competitive trade, the world is but a single community, and vintners of Ispahan and Anaheim are neighbors, and their common product accessible to any market.

Without regard to home consumption the husbandman may determine the value of his commodities; foreign consumption and foreign markets are but a span off.

In agriculture, as in art, it is the very acme of skill to turn the powers of nature to best account—to conquer her many infirmities. Nature has her forte and affinities equally as marked and peculiar as with human kind; and when she extends an affectionate and wooing invitation to the vine, it is a sin to withhold it.

When the authorities of France compelled her landed proprietors to cultivate the beet root and the wood, the Department of Agriculture justly decried it as an infringement upon both nature and public policy—a perversion of the natural sources of wealth existing in French soil. Humboldt truly remarked in tones of condemnation of such a policy: that seven square leagues of land in a tropical climate could furnish as much sugar as the utmost consumption of France in its best days has ever required; that wines from one half the space occupied by the sugar beet and wood would produce a larger quantity of colonial sugar and indigo, through the same channels of commerce, and precisely the same encouragement to domestic industry afforded.

When any enterprise, which directly draws upon the soil for its base, requires such an outlay of capital as the wine grape, and is experimental in its inception, its infancy should be fostered and protected by the arm of the Government, that its manhood might become one of its chief supports; for a useful act is performed, and an item added to the national wealth, when the tiller of the soil has succeeded in proving its greatest productive service. Land, by the intervention of art, yields all there is of value, and it is the only natural agent possessing productive properties.

It is asserted that the value of any product is never more than a just recompense for the labor expended in its evolution, and may fall far short of it. Skill always demands a higher recompense than the mere physical power which plants and reaps; and this recompense will be greater in proportion to the skill afforded with the wine-grower; for above all other branches of land culture it requires skill, science, more thought and courage, and he will be rewarded in just proportion as he employs these. It is also true that the productive power of soils has no value unless its products are subjects of demand; it is demand that constitutes the basis of all values. Where demand for a product is aggravated beyond the point of equilibrium so as to yield the producer a profit over current interest on the capital invested, the agent of this product, which is the soil, becomes proportionately enhanced in value; and where the price of land and expense of cultivation are disproportionate with current rates of interest, there is a gap between capital and labor which is bridged by the ruins and guarded by the wolf, or overflowing with luxuries.

The fruit of the vine occupies an important niche in the catalogue of commodities. Its wines are grateful to the palate, and, taken in moderation, beneficial to health. It produces a cheerful thought, and abounds in social joy. Its delicate flavor and aroma fascinate all but coarser natures.

The sap, or "tears of the vine," is possessed of medicinal qualities. The branches, when burned, furnish a superior potash and salts. The fruit, dried, produce what is known in commerce as raisins. Brandy and spirits, drank and used in the arts, are distilled from the murk. The unfermented juice, when boiled to the consistency of syrup, affords an excellent substitute for that article. From the pips is produced an oil suitable for domestic use. The leaves in many portions of Europe are used by physicians and surgeons in treating their patients; and they also make an excellent tea, grateful to nervous temperaments. And not least among its many virtues, from its wines is manufactured vinegar of great preserving power—indispensable in the kitchen.

The vine has been the cheerful follower of civilization from the time it left the banks of the Tiber and Trifoline Hills till it reached the Pactolian shores of the Pacific. And now, amid the bewildering achievements of science and the arts, it basks in the social reputation of being the most exquisite of human luxuries.

The cloistered fathers first planted it in this the Eden of America. They were the first cultivators and connoisseurs of wine on these western shores. As in old Spain, every Mission had its vineyard, and in the Church it found a friend who nourished it with sacred assiduity, and by its devotees it was reckoned the veriest handmaid of civilization and refinement.

It was for many years that the Vitis Venifera of the continent of Europe was accounted the only variety which could be successfully cultivated in America for wine making. The science of the vine grower was bounded by the horizon of European experience. The mind of the American culturist never left the furrow his fathers had made; a hybrid or grape of indigenous growth he never had the hardihood to estimate. The same varieties of grapes, in different localities, have different flavors, and make a dissimilar wine. The Catawba and Hungarian of Coloma are unlike those of any other locality.

The fruit of the vine never follows in quality that of the parent seed. That of the Tokay produces anything but the Tokay. Whether or not the great family of vines, which now number thousands, originated from one or more primordial forms, is not known. Yet we do know that the varieties are increasing.

The quality is also a constant subject of change. The Isabella, as first found by Isabella Gibbs, from whom it derived its name, a wild plant in eighteen hundred and seventeen, and the Catawba, discovered by Adlum on the banks of the Potomac, were not in quality what the same varieties are at the present time. Manner of pruning, time of pruning, mode of cultivation, soil, climate, and character of dressing, all possess a wonderful influence over the fruit. The varieties may be increased almost indefinitely by a systematic cultivation of seedlings and hybridization.

Every country will produce its own variety of any particular product; while the species is never changed by emigration, the quality is.

From the wonderful improvement wrought upon the vine by the hand of man, and the facility with which it yields to its skill, it has been denominated the "Human Vine." Its facile stem may to any form be trained, and its pendent clusters of every size and hue excite the admiration of stoics. The Parnassian deity, fed in infancy on ambrosia and wine brought by pigeons from streams of ocean, and nectar drawn by eagles' beaks from the rock, was the father of our Bacchus, the first discoverer and cultivator of the vine, and of the mode of extracting its precious liquors.

The wine groves of Icarius, under his culture, made Attica famous, and the inspirations excited by their juices of his extraction made Icarius immortal in history. The sultry delicacy of the voices of her timid maidens keeping time with the swinging thyrsi gives to the vine a delicious antiquity, and festoons its early memories with poetry, love, and grace. Vine bowers gave to the Idean vale mellow, voluptuous pleasures, and softened to enchantment the rays of light as they streaked among its fruits.

> "Glory, the *grape*, love, gold—in these are sunk
> The hopes of all men and of every nation."

No particular system of cultivation is absolutely the best for every locality and condition. The soil, nature and variety of grape, climate, and age of plant, must all be considered. All methods are successful in a degree. But the greater the care and skill, the more complete the success.

Next to the horse, the vine is man's most attractive and obedient servant, and as readily responds to his mastership. It produces the mistress of fruits. There is enjoyment and nourishment in the eating, and the enjoyment is prolonged in the consumption of its wines. Its culture in California is yet in its infancy. Who can point to a single variety of indigenous grape of any considerable extent of cultivation? Is it ascertained what variety is best, and best suited for different localities? All that can be said is, that this or that of the exotics is superior to some other. But not until the cultivation of the seedling has become general, and choice selections made from these, can it be said that this or that is best.

The only indigenous vine in El Dorado County of which I have any knowledge, is known as Broad's XXX, a seedling culled from two thousand five hundred; its fruit resembles and is about the size of the Muscat of Alexandria, possesses a virgin taste, marked for its luscious fruity piquancy, but unmixed with any known bouquet. The vine, in consistency, is between the compact Catawba and porous Sweetwater, the pipes small and few.

The vine is susceptible of wonderful improvement by crosses. By hybridizing the different varieties of acknowledged excellence, a perfect cross may be produced. They unite with mutual and happy effect, yielding a quality of bouquet and aroma unlike either, but peculiar to both. The real extent and worth of our soils we shall never know until hybridizing and the rearing of seedlings is made the study and has secured a modicum of employment.

I believe California will yet produce a richer, more palatable, more marketable and sanitary wine than Europe; and for the table our present varieties of grapes excel.

Her mineral waters, mineral deposits, and metallic base add permanence and solidity to her many agricultural resources. For the scientific traveler and man of leisure, "fairer shores than ours never angel coasted on tour of pleasure." Armed at every point with the means of conquering the infirmities of nature, our people are daily making the miracle of reproduction most miraculous, and giving to the laws of induction beauty, brilliancy, and an air of Olympic inspiration.

They are daily making discoveries upon which to rest the highest principles of induction. They are drawing from the earth juices of untried relish. They are developing her hidden riches, and show their appreciation of the gifts of God in the development.

> "If all the world
> Should, in a pet of temperance, feed on pulse,
> Drink the clear stream and nothing wear but frieze,
> Th' All-Giver would be unthanked, would be unpraised,
> Not half His riches known, and yet despised;
> And we should serve Him as a grudging master
> And a penurious niggard of His wealth."

FINANCE REPORT.

	Receipts.	
	For memberships	$171 00
	For annual dues	12 00
	State appropriation	2,000 00
	Total	$2,183 00
	Expenditures.	
1872.		
Feb. 21	Anthony & Co., advertising	$1 00
Feb. 21	Daily Record	1 50
Feb. 21	Daily Reporter	1 00
March 10	H. S. Crocker & Co., stationery	39 75
March 9	Reporter, advertising	2 00
March 9	Exempt Firemen's Association, rent	10 00
March 9	E. G. Jefferis & Co., printing	25 00
March 9	Anthony & Co.	2 50
May 11	H. S. Crocker & Co., books	7 00
October 1	J. G. Gunnison, watchman	36 00
October 4	T. J. Dunphy, painting sign	7 25
1873.		
January 2	J. H. Harrington, premium	25 00
January 21	J. Rutter, premium	20 00
January 21	B. N. Bugbey, premium	50 00
January 21	George West, premium	50 00
January 21	J. R. Snyder, premium	25 00
January 21	J. Ochsner, premium	50 00
January 21	W. G. West, entry clerk	20 00
January 21	Orleans Hill Vinicultural Association, premium	50 00
January 21	George Johnston, premium	100 00
January 21	E. F. Aiken, Superintendent and premiums	110 00
January 23	J. R. Nickeson, premiums	170 00
January 23	M. Keller, premiums	125 00
January 23	R. A. Shanklin, labor	13 50
	J. Goodwin, premium	15 00
	H. T. Hutchinson, premium	90 00
	Ira Bamber, premium	10 00
	R. B. Blowers, premium	20 00
	E. Dane, premium	10 00
	Amount carried forward	$1,086 20

	Amount brought forward	$1,086 20
	Dewey & Co., advertising	80 00
	H. S. Crocker & Co., printing	10 30
February 1	Anthony & Co., advertising	7 50
February 2	Record, advertising	5 50
February 1	A. A. Flint, labor, etc	2 00
February 1	Exempt Firemen's Association, rent	25 00
	I. N. Hoag, bills for sundries	6 75
	Orleans Hill Vinicultural Association, premiums	50 00
	Total expenses paid to date	$1,273 25
	Cash on hand	$909 75

REPORT OF THE FIRST ANNUAL FAIR

OF THE

CALIFORNIA

Vine Growers' and Wine and Brandy Manufacturers'

ASSOCIATION,

HELD

IN CONNECTION WITH THE STATE FAIR, AT SACRAMENTO CITY, SEPTEMBER 19TH TO 27TH, 1872.

LIST OF PREMIUMS.

Brandy.	
Best grape brandy, vintage 1871	$25
Best grape brandy, vintage 1870	$25
Best grape brandy, vintage 1869	$25
Best grape brandy, vintage 1868	$25
Best grape brandy, vintage 1867, or older	Diploma.
Dry Wines.	
Best white wine, vintage 1871	$25
Best white wine, vintage 1870	$25
Best white wine, vintage 1869	$25
Best white wine, vintage 1868	$25
Best white wine, vintage 1867, or older	Diploma.
Best red wine, vintage 1871	$25
Best red wine, vintage 1870	$25
Best red wine, vintage 1869	$25
Best red wine, vintage 1869	$25
Best red wine, vintage 1868	$25
Best red wine, vintage 1867, or older	Diploma.
Sweet Wines.	
Best white wine, vintage 1871	$25
Best white wine, vintage 1870	$25
Best white wine, vintage 1869	$25
Best white wine, vintage 1868	$25
Best white wine, vintage 1867, or older	Diploma.
Best red wine, vintage 1871	$25
Best red wine, vintage 1870	$25
Best red wine, vintage 1869	$25
Best red wine, vintage 1868	$25
Best red wine, vintage 1867, or older	Diploma.
Special Wines.	
Best California port wine, vintage 1871	$25
Best California port wine, vintage 1870	$25
Best California port wine, vintage 1869, or older	Diploma.
Best California sherry wine, vintage 1871	$25
Best California sherry wine, vintage 1870	$25
Best California sherry wine, vintage 1869, or older	Diploma.
Best California sparkling wine, vintage 1871	$25
Best California sparkling wine, vintage 1870	$25
Best California sparkling wine, vintage 1869, or older	Diploma.
Best California angelica wine, vintage 1871	$25
Best California angelica wine, vintage 1870	$25
Best California angelica wine, vintage 1869, or older	Diploma.
Miscellaneous.	
Best samples of grape syrup, not less than one gallon	$20
Best sample of grape sugar, not less than five pounds	$20
Best twenty-five pounds of raisins	$50
Best still	$50
Best grape crusher and separator	$50
Best and cheapest tank, cask, or butt, for wine or brandy, for storage	$50

LIST OF PREMIUMS—Continued.

Grapes.	
Best twelve varieties of table grapes, not less than three bunches each	$25
Best six varieties of table grapes, not less than three bunches each	$20
Best three varieties of table grapes, not less than three bunches each	$15
Best two varieties of table grapes, not less than three bunches each	$10
Best one variety of table grapes, not less than three bunches	$20
Best twelve varieties of wine grapes, not less than three bunches each	$25
Best six varieties of wine grapes, not less than three bunches each	$20
Best three varieties of wine grapes, not less than three bunches each	$15
Best two varieties of wine grapes, not less than three bunches each	$10
Best one variety of wine grapes, not less than three bunches	$20
Best variety of raisin grapes	$10
Best and greatest variety of grapes, not less than three bunches each	$60
Second best and greatest variety of grapes, not less than three bunches each	$40

RULES.

The object of the following Rules in reference to Statements by Exhibitors, will be readily seen:

RULE I.

Each exhibitor of brandy shall, at the time he enters his brandy for exhibition, furnish the Secretary, as far as practicable, with a full and truthful statement as to whether it is made from grape entire, from wine, or from pomace, and the variety or varieties of grapes used in either case; the character of the soil and subsoil; the altitude, as near as may be, of the locality where the grapes were grown; the kind of still used and the mode of distillation, including the manner of applying the heat; whether rectified or flavored in any way, and, if so, with what ingredient or ingredients, and how applied. No brandy less than proof shall receive any premium.

RULE II.

Each exhibitor of wine shall furnish the Secretary, as far as practicable, at the time of entering the same, with a full and truthful statement of the variety or varieties of grapes from which it is made, the character of the soil or subsoil, and altitude, as near as may be, and general aspect of the locality in which the grapes from which it was made were produced, the age of the vines, the distance apart at which they are planted, and the manner of cultivating and pruning the same. Also, whether the vineyard was planted with cuttings or with rooted vines, and the number of grapes in tons, and wine in gallons, produced to the acre. Also, whether the juice was fermented on the skins or not, and a full and detailed statement of the manner in which the grapes and wine have been treated from the time of picking the fruit to the time of placing the wine on exhibition, including the stage of ripeness at which the grapes were picked and crushed. He shall also exhibit, if practicable, a sample of the grapes grown on the same vine as those from which the wine was made.

RULE III.

No exhibitor of grapes, raisins, wines, or brandy, shall receive a premium for any one of these articles of which he is not the producer or manufacturer; and no wine, except sparkling wines, containing any ingredient except the pure product of the grape, shall receive any premium offered by the Association.

RULE IV.

All wines shall be exhibited in quart champagne bottles, corked without sealing, and before being placed in the hands of the committee for testing, shall be so wrapped with paper or other material as to completely hide the label and prevent the possibility of identifying the ownership of the same, so as to avoid the effects of bias on the part of the committee in favor of locality or individuals.

RULE V.

After the regular committees have passed upon the brandies or wines, they shall seal up their decisions and place them in the hands of the Secretary, to be kept strictly private. The exhibitors of the brandies and the exhibitors of the wines shall then form themselves into committees, to be known as the Committees of Exhibitors, and the samples of the brandies, concealed as above, shall be submitted to the committee on brandy so constituted, and the samples of wine to the wine committee so constituted; and they shall, in like manner, make up their decisions, seal them, and hand them to the Secretary; but the award of the regular committees shall be final as to the premiums, and the decision of the Committees of Exhibitors shall only be considered as a test of judgment.

RULE VI.

All the committees shall classify all the samples of wine or brandies submitted to them in the order of their quality, and shall state in detail the reasons for their decisions.

RULE VII.

When all the reports of the committees on wines, brandies, grapes, and raisins, have been written and placed in the hands of the Secretary, he shall call a meeting of the Association at some convenient place. At this meeting shall be opened and read the reports of the committees, both regular and of the exhibitors, and the statements of exhibitors, above required; and all questions raised by such reports and statements may be fully discussed under such rules as the Association may adopt for the occasion.

RULE VIII.

Each exhibitor shall furnish for exhibition and testing at least two bottles of each variety of brandy and wines exhibited, and at least one duplicate bottle of each variety, to be kept in store by the Association to observe and note the effects that age will produce on the same.

RULE IX.

Each exhibitor of raisins shall file with the Secretary a statement of the soil, etc., as required by exhibitors of wine, and in addition shall set forth his mode of picking, as to degrees of ripeness, and his manner of drying, and handling, and packing the same.

RULE X.

Each exhibitor of grapes for a premium shall give all the names of each variety by which he knows them; and shall exhibit a section of the wood of the vine of each variety containing at least one bunch of grapes and samples of the leaves, to enable the Committee on Classification to give to them the proper description, and to obtain a photograph true to nature of the wood, berry, and leaf, for illustration.

RULE XI.

The exhibition of the California Vine Growers and Wine and Brandy Manufacturers' Association will be held at the same time and in the same building with the State Fair, but the whole management of the same will be under the control of the Board of Directors of the Association, subject to the rules governing the State Agricultural Society's Fair. All articles intended for exhibition at the Vine Growers' Fair must be directed to I. N. Hoag, Secretary California Vine Growers and Wine and Brandy Manufacturers' Association, Sacramento, accompanied by letters explaining the same, and any directions necessary to avoid mistakes.

RULE XII.

All exhibitors who intend to become competitors for the premiums of the Association must become members thereof, and must have their articles properly entered in the Secretary's books, and in their place in the Pavilion by twelve o'clock M. of Saturday, the twenty-first of September.

The committee to classify grapes are authorized to offer liberal premiums for paintings of fifty varieties of grapes.

Memberships, two dollars and fifty cents; to be had of the Secretary.

B. D. WILSON, Los Angeles, President.

I. N. HOAG, Secretary.

ARTICLES EXHIBITED.

BRANDY.

Eberhart & Lachman, San Francisco—Grape brandy of the vintages of 1870 and 1871.

Schell, Krause & Co., Knight's Ferry—Glen Clara brandy, vintages of 1871 and 1868.

O. W. Craig, Sonoma—Grape brandy, vintage of 1872.

M. Keller, Los Angeles—Brandy, of the vintages of 1870 and 1871.

B. N. Bugbey, Folsom—Brandy, muscat, of the vintages of 1870 and 1871; Fiherz Ogre, of the vintage of 1870; grape brandy, vintages of 1867, 1868, and 1869.

Johnston Brandy and Wine Manufacturing Company, Sacramento—Sacramento cognac, vintage of 1871; acetic ether, grape, and fusel oil; Sacramento cognac, vintage of 1871.

Robert Chalmers, Coloma—Grape brandy, vintages of 1870 and 1871; apple brandy, vintage of 1870; peach brandy, vintage of 1870; cherry brandy, vintage of 1871.

J. R. Snyder, Sonoma—Brandy (El Cerrito), vintages of 1866 and 1865.

J. R. Nickeson, Lincoln—Grape brandy, vintages of 1870 and 1871; white muscat brandy, vintages of 1871 and 1870; pear brandy, vintage of 1871; apple brandy, vintages of 1870 and 1871; blackberry brandy, vintage of 1872; peach brandy, vintage of 1871; pear brandy, vintage of 1870.

DRY WINES.

Eberhart & Lachman, San Francisco—Dry muscatel, vintage of 1871; dry catawba, vintage of 1870.

J. R. Snyder, Sonoma—Native dry muscatel, vintage of 1865; El Cerrito, vintage of 1865.

J. W. Stoughtenberg—White wine, vintages of 1871 and 1870; red wine, vintage of 1871.

J. R. Snyder, Sonoma—Reisling, vintages of 1870 and 1871; zinfindel, vintage of 1870; native, vintage of 1868; El Cerrito, no date; native wine, vintages of 1865 and 1866; zinfindel, vintage of 1871.

B. N. Bugbey, Folsom—Zinfindel, vintage of 1871; reisling, vintage of 1871; Burgundy, vintage of 1871.

Orleans Hill Vinicultural Association—Reisling, vintages of 1867, 1868, 1869, 1870, and 1871; Orleans, vintages of 1869 and 1870; muscatel, vintages of 1870 and 1871; catawba, vintages of 1869, 1870, and 1871; white wines, vintages of 1869 and 1870; zinfindel, vintage of 1872.

Robert Chalmers, Coloma—Muscat wine, vintage of 1871; native white wine, vintages of 1869 and 1871.

Grambart & Wells, Drytown—White wine, vintage of 1866.

C. Detter, Stockton—White wine, vintage of 1870.

George West, Stockton—Zinfindel, dry red, vintages of 1870 and 1871; white wine, vintage of 1871.

J. R. Nickeson, Lincoln—Red claret, vintage of 1868; melvina, vintage of 1870; catawba, vintage of 1870; Rose de Peru, vintage of 1870; red Burgundy, vintages of 1869 and 1870; white Black Hamburg, vintage of 1869; white Los Angeles, vintage of 1868; zinfindel, vintage of 1870.

J. H. Rutter, Florin—White dry wine, vintages of 1870 and 1871.

Marshall & Culbertson, Tuolumne County—White wine, with sample of grapes, vintages of 1869 and 1870.

William Hood—White wines, vintages of 1866, 1867 or older, 1870, and 1871; red, 1871.

Charles Le Frank, San José—White wine, vintages of 1868 and 1870; "M," 1871; red, vintage of 1871; "G," vintage of 1871; red wine, vintages of 1868 and 1869.

SWEET WINES.

Eberhart & Lachman, San Francisco—White wine, vintages of 1869, 1870, and 1871; sweet Catawba, vintages of 1870 and 1871.

Schell, Krause & Co., Knight's Ferry—Glen Clara red, vintage of 1869; Glen Clara wine No. 1, vintage of 1871; No. 2, vintage of 1871.

Lewis Addler, Sonoma—White wine, vintage of 1871.

M. Keller, Los Angeles—White wine, vintages of 1867, 1868, 1869, 1870, and 1871.

Lewis Addler, Sonoma—White wine, vintage of 1866.

P. H. Murphy, Brighton—White Muscat, vintage of 1871; Mission, vintage of 1871; Rose de Peru, vintage of 1871.

B. N. Bugbey, Folsom—Orleans, vintage of 1871.

Orleans Hill Vinicultural Association, Sacramento—Tokay, vintages of 1869, 1870, and 1871.

George West, Stockton—Zinfindel, sweet red, vintage of 1871; white wine, sweet, vintage of 1871.

J. H. Rutter, Florin—White sweet wine, vintage of 1871.

J. R. Nickeson, Lincoln—White Malaga, vintage of 1870; sweet Catawba, vintage of 1871; white Tremander, vintage of 1871; St. Peter, vintage of 1871; Los Angeles, vintage of 1871; Muscat and Malaga, vintage of 1871; Dersh Gray, vintage of 1871; Muscatel, vintage of 1871; white St. Peter, vintage of 1870; Los Angeles, vintages of 1868, 1869, and 1870; sweet red wine, vintage of 1871; white Muscat, vintage of 1871; white Nice, vintage of 1868; Madeira, vintage of 1869; white Muscat, vintage of 1870; red Muscat, vintage of 1870; white Catawba, vintage of 1870.

L. R. Chamberlain, Lincoln—Catawba wine, vintages of 1871 and 1870.

E. Dane, Sonora—Red wine, vintage of 1868; white wines, vintages of 1868, 1870, and 1871; red wine, vintage of 1869; white wine, vintage of 1867.

SPECIAL WINES.

Eberhart & Lachman—California sparkling, vintage of 1871; sparkling muscat, vintage of 1871; California wine bitters, vintage of 1870; California wine cocktail bitters, no date; old hock wine, vintages of 1869 and 1870; old malaga wine, vintage of 1869; sweet muscatel, vintages of 1870 and 1871; port wine, vintages of 1868, 1869, 1870, and 1871; old madeira wine, vintage of 1869; Sonoma claret, vintage of 1870; red zinfindel, vintage of 1870; Mount Vineyard, vintages of 1870 and 1871; angelica wine, vintages of 1870 and 1871; sherry wine, vintages of 1870.

Schell, Krause & Co., Knight's Ferry—Glen Clara hock, vintage of 1871; Glen Clara port, vintage of 1869; Glen Clara sherry, vintage of 1868; madeira, vintage of 1869.

O. W. Craig, Sonoma—Sweet muscatel, vintage of 1871; hock wine, vintage of 1867; amber malaga, vintage of 1867.

Alfred Lammot, Sonoma—Natural sherry, vintage of 1867.

M. Keller, Los Angeles—Port wine, vintages of 1868, 1869, 1870, and 1871; sherry, vintages of 1869, 1870, and 1871; angelica, vintages of 1869, 1870; El Dorado, vintages of 1870 and 1871; California bitters, vintage of no date.

B. N. Bugbey, Folsom—California port, vintages of 1869, 1870, and 1871; Chamberlin, vintage of 1871.

Orleans Hill Vinicultural Association, Sacramento—Port, vintages of 1869, 1870, and 1871.

Robert Chalmers, Coloma—Catawba wine bitters, no date; native wine bitters; port wine bitters; blackberry cordial; Green Hungarian, vintages of 1870 and 1871; catawba wine, vintages of 1868, 1870, and 1871; catawba and native wine mixed, vintage of 1871; Isabella wine, vintage of 1871; angelica wine, vintage of 1871; Burgundy wine, vintage of 1871; Reisling, vintage of 1870; muscatel, vintage of 1871; port, vintage of 1871.

I. R. Snyder, Sonoma—Half zinfindel and native, vintage of 1868.

George West, Stockton—Sherry, vintages of 1866, 1870, and 1871; port wine, vintages of 1867 and 1870; No. 1, vintage 1871; No. 2, vintage of 1871.

J. N. Nickeson, Lincoln—Sherry, vintage 1870; port, vintages of 1869 and 1871; angelica, Los Angeles, vintages of 1870 and 1871; claret, vintage 1870; angelica-muscat, vintage of 1870; sherry, vintage 1869; port (Peru), vintage of 1870.

Newhall & Culvertson, Tuolumne County—Sherry, with sample of grapes, vintage 1869.

S. L. Watson, Alzora Vinyard, Sacramento County—Sherry, vintage 1870; wine, no name, vintage 1869.

Wm. Hood—Angelica, vintage 1870.

MACHINERY.

F. B. Schoenstein, San Francisco—Grape crusher and stemmer.

George Johnston, Sacramento—Three grape crushers and stemmers.

William F. Johnson, Folsom—Three grape crushers and stemmers.

J. Ochsner, Sacramento—One wine cask (redwood), three thousand five hundred gallons; one pipe (oak), one hundred and sixty gallons; one keg (oak), ten gallons; one, five gallons; brandy eighth (oak), twenty-two gallons.

George Johnston, Sacramento—Improved still (picture and model).

RAISINS.

R. B. Blowers, Woodland—Malaga and muscatel raisins.

E. F. Aiken, Glen Gardens, Sacramento County—White Muscat of Alexandria.

J. R. Nickeson, Lincoln—Grape syrup; malaga raisins cured in 1871 and 1872.

Sydney Smith, Sacramento—White muscat.

S. L. Wilson—White muscat, three boxes.

Mrs. M. A. Lowell, Brighton—Box of seedless raisins.

GRAPES.

J. H. Harrington—White Muscat of Alexandria, cannonball muscat, Flaming Tokay, Rose de Peru, Black Hamburg, Black July, Black Prince, blue malvoisie, Zante currant, white gneiss, California mission (native,) Red Rose of Chasselas, white swan, white Malaga, black Malaga, black grape (name unknown), royal muscadine, black Morocco, Fontainebleau, black St. Peter, Frankindale, Isabella, catawba, white chasselas.

G. W. Threlkel, Placer County—Flaming Tokay.

George H. Kerr, Elk Grove—White Muscat of Alexandria, cannonball muscat, flaming tokay, blue malvoisie, Rose de Peru.

R. B. Blowers, Woodland—Malaga muscatel.

P. H. Murphy, Brighton—Rose de Peru, Barbara rose, red traminer, black Malaga, red mountain, flaming tokay, blue malvoisie, white gneiss, white Muscat of Alexandria, cannonball Muscat, Black Prince, Black Hamburg, white tokay, white Syrian, mission.

Robert Chalmers, Coloma—Green Hungarian, red traminer, black Burgundy, red mountain, Black Prince, Isabella, native, Black Hamburg, Rose de Peru, white Muscat of Alexandria, catawba, white St. Peter, flaming tokay.

I. S. Bamber, Placerville—Muscat of Alexandria, cannonball muscat, flaming tokay, black tokay, fiher zagos, Black Prince, Black Hamburg, Rose de Peru, black Morocco, Isabella, mission, red mountain, white Malaga, black Malaga, Isabella, catawba, mission; and white muscatine, red muscatine, royal muscatine, white St. Peter, red St. Peter, zinfindel, and green Hungarian, all wine grapes.

J. R. Nickeson, Lincoln—White Spencer, Portugal muscat, white Dutch, Pride of the Foothills, white Morocco, white Portuguese, green tokay, Delaware, white Cicerian, large Damascus, Diana, white St. Peter, Portugal Hamburg, catawba, black Morocco, blue martelle, yellow province, black Frontignon, black Portuguese, white Napoleon, black cluster, black zinfindel, purple chasselas, white Syrian, black malvoisie, cleffuer, white Tomales, black Chile seedlings, Reine de Nice, golden Hamburg, white chasselas, white muscadine, rose chasselas, black Burgundy, black lestra, French wine grape, black muscadine, white tokay, white cynthia, medoc from Bordeaux, white olney, green Portuguese, flaming tokay, Rebecca, red Florence, White Herman, Duree, French reisling, purple Frontignon, dilbrat, Pedro Ximenes, Tokay Los Angeles, J. S. Friend, white Malaga, white Chile, pet St. Peter, Orleans, red fermina, black July, Black Prince, white Selina, tokay muscat, black muscadine, golden chasselas, Thompson's black, purple Burgundy, red Burgundy, yellow muscadine, white malvoisie, grisly Frontignon, white Candaline, early Madeline, black muscat, black perino, black Sicily, Frollinger, Japanese, pink Malaga, seedless sultana, white Palestine, white Morocco, black Malaga, white muscatel, early white Hamburg, Victoria, white Sweetwater, black Hamburg, red mountain, black Lombardy, white canteline, blue martel, Clinton, deish gray, white Dutch Sweetwater, Melvina, white Dundertown, Florence, purple Damascus, clino, black giant, Deacon Suberlin, white tremenia, reisling, Isabel, early round black, Miller's Burgundy, Lincoln, Verdelno, pride of Paris, white Hamburg, white Rance, black Portugal, clustered Cenian, black Malaga, Rose of Peru, bishop.

J. Rutter, Florin—Blue malvoisie, best table grape; white muscat, two varieties; mission, three varieties; black Hamburg, flaming tokay, Frankindale, mountain red, Dutch Sweetwater, catawba, white Nice, black St. Peter, Lombardy—best twelve table varieties.

Manson Yerza, Sacramento—California muscat, black Morocco, white Syrian, red Rose of Peru, red tokay.

William S. Willis, Elk Grove—White Muscat of Alexandria, white Syrian, black Morocco.

H. T. Hutchinson, Marysville—Black Hamburg, white Hamburg, white Buel, white Syrian, black cluster, black St. Peter, Worthy Hall, Worthy Hall seedling, white St. Peter, white reisling, verdelto, Prince Albert, white Nice, white tokay, Queen of Nice, black Portugal, dollstine, civitat gross, Guillaume, bozia noir, Victoria Hamburg, Wilmot's No. 16, tokay de Jardins, Joslyn's St. Albans, red mountain, Wilmot's new black Hamburg, grosa, Rose of Peru, black Morocco, Muscat of Alexandria, Portugal muscat, Chile black, white Sweetwater, bishop, Chile rose, Gross de Italy, Prince de Joinville, white Orleans, Olivetta, Tottenham Park muscat, chasselas de Fontainebleau, black Syrian, Zante currant, chasselas blanche, white Frontignon, grisly Frontignon, red Frontignon, Napoleon, spirum, Los Angeles, Los Angeles seedling, seedling muscat, violet muscat, royal muscadine, white chasselas, McReady's early white, dersh gray, West's St. Peter, black Lombardy, bronze catawba, Concord, Isabella, blue Hamburg, Chile rose, Peruvian rose, Millhill Hamburg, Miller's Burgundy, fiber zagos, Pillmaston's white cluster, white Nice, golden chasselas, fanar, bowker, rose chasselas, red traminer, flame-colored tokay, imperial chasselas, beccor superb, De Candolee, black chasselas, Beach's early black, black cluster, bristo superb, white courth, zinfindel, red Hamburg, seedling chasselas, trannier, early white muscat, red Lombardy (seedlings), black malvoisie, white early black July.

Owen T. Davis, Brighton—White muscat, flaming tokay.

E. Dane, Sonora—White muscat, flaming tokay.

J. Goodwin, Sonora—Purple damascus, white muscat, white syria, flaming tokay, grapes, name not known.

S. L. Wilson, Sacramento—White Nice, flaming tokay, white muscat.

O. B. Shaw, Sonoma—Malaga, St. Croix, Chile rose.

PREMIUMS AWARDED.

It is proper here to remark, that none of the committees on brandies or wines were aware of the names of the makers of the articles submitted to them for testing, the label of each bottle being completely covered by wrapping paper, on the outside of which were written the specific name of the article contained therein, and the date of the vintage.

We append the reports of each committee, which for themselves show the manner of making the awards, and that there was no possible chance for favoritism.

In connection with the award of premiums, statements made by the several exhibitors, in accordance with the rules of the association, will be found interesting and instructive.

REPORT OF COMMITTEE ON BRANDY.

Sacramento, September 26th, 1872.

To the Hon. President and Board of Directors of the California Vine Growers and Wine and Brandy Manufacturers' Association:

Gentlemen: The committee on brandies report as follows:

Of the vintage of eighteen hundred and seventy-one, premium to No. 29.

Vintage of eighteen hundred and seventy, premium to No. 29.

Vintage of eighteen hundred and sixty-eight, No. 21 is the best, but we do not consider any sample shown worthy of premium.

Vintage of eighteen hundred and sixty-seven, premium to No. 21.

Vintage of eighteen hundred and sixty-six, premium to No. 19.

Vintage of eighteen hundred and sixty-five, premium to No. 19.

The memorandum book containing entries given us by Mr. Hoag was taken from us by him. We passed upon samples as given us by his clerk.

Very respectfully,

W. BARTELS,
W. R. ROGERS,
JOHN M. DUNCAN.

By substituting the names of the exhibitors represented by the foregoing numbers, and adding their residences, we have the award of premiums, as follows:

Exhibitor.	Residence.	Article.	Awards.
M. Keller	Los Angeles	Grape Brandy 1871	$25
M. Keller	Los Angeles	Grape Brandy 1870	$25
B. N. Bugbey	Folsom	Grape Brandy 1869	$25
B. N. Bugbey	Folsom	Grape Brandy 1867	Diploma.
J. R. Snyder	Sonoma	Grape Brandy 1866	Diploma.
J. R. Snyder	Sonoma	Grape Brandy 1865	Diploma.

REPORT OF COMMITTEE OF EXHIBITORS.

At the meeting of exhibitors of brandy, held under the above rules, there were present George West, George Johnston, J. R. Nickeson, Robert Chalmers, J. R. Snyder, and O. W. Craig. Duplicates of all the brandies submitted to the regular committee were submitted to them, covered with paper, as before. After testing the same carefully, they reported as follows:

Of the brandy of eighteen hundred and seventy-one the first choice is that of General West; second choice that of M. Keller; third choice that of the Johnston Manufacturing Company. Of the brandies of eighteen hundred and seventy, first choice that of Robert Chalmers; second choice that of M. Keller; third choice that of Eberhart & Lachman; fourth choice that of James R. Nickeson. There was no competition in the brandy of eighteen hundred and sixty-nine. Of that of eighteen hundred and sixty-eight, first choice that of Schell, Krause & Co.; second choice that of B. N. Bugbey. No competition in brandy of eighteen hundred and sixty-seven—Bugbey the only exhibitor. No competition in the brandy of eighteen hundred and sixty-six and eighteen hundred and sixty-five—Snyder the only exhibitor.

REPORT OF COMMITTEE ON DRY WHITE WINES.

To the President and Board of Directors of the California Vine Growers and Wine and Brandy Manufacturers' Association:

GENTLEMEN: Your committee on dry wines have carefully examined the various vintages, classes, and qualities presented for our examination, and beg leave to report as follows:

Of the white wine, vintage of eighteen hundred and seventy-one, there were nineteen entries, and the premium was awarded to No. 18—Reisling.

Of dry white wine, vintage of eighteen hundred and seventy, there were twenty-three entries, and the premium was awarded to No. 19—Reisling.

Of dry white wine, vintage of eighteen hundred and sixty-nine, there were eight entries, and the premium was awarded to No. 27—Old Hock.

Of dry white wine, vintage of eighteen hundred and sixty-eight, five entries, and the premium was awarded to No. 18—Reisling.

Of dry white wine, vintage of eighteen hundred and sixty-seven, eight entries, and the premium was awarded to No. 18—Reisling.

Dry white wine, vintage of eighteen hundred and sixty-six, four entries. Diploma awarded to No. 13.

Dry white wine, vintage of eighteen hundred and sixty-five, one entry. Diploma awarded to No. 19.

Dry white wine, vintage of eighteen hundred and sixty-four, only one entry. Diploma awarded to No. 19.

DRY RED WINES.

Dry red wines, vintage of eighteen hundred and seventy-one, seven entries. Premium awarded to No. 21—Burgundy.

Dry red wine, vintage of eighteen hundred and seventy, seven entries. Premium awarded to No. 27—Zinfindel.

Dry red wine, vintage of eighteen hundred and sixty-nine, two entries. Premium awarded to No. 34—Burgundy.

We found one sample of dry red wine with no vintage given, numbered 43, and we awarded it a special mention as a fine, clear, dry red wine.

Dry red wine, vintage of eighteen hundred and sixty-eight, seven entries. Premium awarded to No. 19—Zinfindel.

Dry red wine, vintage of eighteen hundred and seventy. A diploma is recommended and awarded to No. 19—Zinfindel. This is specially urged by your committee for this wine, it being of superior quality and only a shade in the difference between it and that to which the premium was awarded.

Special mention is made by your committee of a malaga wine of the vintage of eighteen hundred and sixty-seven, and we recommend a diploma therefor to No. 13.

Special mention is also made by your committee of a fine sample of madeira wine, presented to them by No. 27; and also to same number, a specimen of old malaga, vintage of eighteen hundred and sixty-nine, and of which special mention is made by your committee.

All of which is respectfully submitted.

E. S. CARR,
J. REMMEL,
T. M. LOGAN,
CHAS. F. LOLL,
Committee.

By substituting names and residences, we have the awards as follows:

Exhibitor.	Residence.	Article.	Award.
O. H. V. A.	Sacramento	White Reisling 1871	$25
O. H. V. A.	Sacramento	White Reisling 1868	$25
O. H. V. A.	Sacramento	White Reisling 1867	Diploma.
Wm. Hood	Los Guilucos	White Wine 1866	Diploma.
Eberhart & Lachman	San Francisco	White Old Hock 1869	$25
Eberhart & Lachman	San Francisco	Red Zinfindel 1870	$25
J. R. Snyder	Sonoma	White Reisling 1870	$25
J. R. Snyder	Sonoma	White Native 1865	Diploma.
J. R. Snyder	Sonoma	White Native 1864	Diploma.
B. N. Bugbey	Folsom	Red Burgundy 1871	$25
Robert Chalmers	Coloma	Burgundy Wine	Especial ment'n.
J. R. Nickeson	Lincoln	Red Burgundy 1869	$25

REPORT OF COMMITTEE OF EXHIBITORS.

At the meeting of exhibitors of dry wines there were present: J. R. Snyder, Robert Chalmers, George West, and J. H. Carroll of the O. H. V. A. They awarded as follows:

Dry white wines: Vintage of eighteen hundred and seventy-one—First choice, O. H. V. A.; second choice, J. R. Snyder; third choice, Eberhart & Lachman. Vintage of eighteen hundred and seventy—First choice, J. R. Snyder; second choice, Eberhart & Lachman; third choice, Eberhart and Lachman. Vintage of eighteen hundred and sixty-nine—First choice, O. H. V. A.; second choice, O. H. V. A.; third choice, O. H. V. A. Vintage of eighteen hundred and sixty-eight—First choice, O. H. V. A.; second choice, M. Keller; third choice, no award. Vintage of eighteen hundred and sixty-seven—First choice, M. Keller; second choice, Wm. Hood. Vintage of eighteen hundred and sixty-six—First choice, J. R. Snyder; second choice, Wm. Hood.

Dry red wines: Vintage of eighteen hundred and seventy-one—First choice, Charles Le Franck; second choice, George West. Vintage of eighteen hundred and seventy—First choice, J. R. Snyder; second choice, Eberhart & Lachman; third choice, C. Le Franck. Vintage of eighteen hundred and sixty-nine—No sample on exhibition worthy of a premium. Vintage of eighteen hundred and sixty-eight—First choice, J. R. Nickeson.

REPORT OF COMMITTEE ON SWEET WINES.

To the President and Board of Directors of the California Vine Growers and Wine and Brandy Manufacturers' Association:

GENTLEMEN: The undersigned beg leave to make the following report after the examination of sweet wines:

For vintage of eighteen hundred and seventy, No. 27 is the premium bottle—"Sweet Catawba."

For vintage of (red wine) eighteen hundred and seventy-one, No. 34 receives the premium.

For (Tokay) eighteen hundred and sixty-nine, No. 18 receives the premium.

For (Tokay) eighteen hundred and seventy-one, No. 18 receives the premium.

For vintage of eighteen hundred and sixty-eight, and eighteen hundred and seventy, No. 70 receives the premium.

For eighteen hundred and sixty-eight, and eighteen hundred and sixty-nine, No. 20 is the only sample, but not worthy of a premium.

For vintage of eighteen hundred and seventy, No. 18 receives award of second choice; very fine.

For vintage of eighteen hundred and sixty-seven, white wine, No. 34 receives premium.

For vintage of eighteen hundred and seventy-one, No. 27 receives award of second choice, and very fine.

E. S. CARR,
A. BARBIER,
WILLIAM McP. HILL,
Committee.

Substituting names and residences for numbers, we have the following awards:

Exhibitor.	Residence.	Article.	Award.
O. H. V. A.	Sacramento	Tokay 1871	$25
O. H. V. A.	Sacramento	Tokay 1870	2d choice; very fine
O. H. V. A.	Sacramento	Tokay 1869	$25
George West	Stockton	White Wine 1868	$25
George West	Stockton	Red Zinfindel 1870	$25
J. R. Nickeson	Lincoln	White Wine 1867	Diploma.
J. R. Nickeson	Lincoln	Red Wine 1871	$25
Eberhart & Lachman	San Francisco	Catawba 1870	$25
Eberhart & Lachman	San Francisco	Sweet Muscatel 1871	2d choice; very fine

REPORT OF COMMITTEE OF EXHIBITORS.

There were present of the exhibitors of sweet wines Carl Strobel, of the Orleans Hill Vinicultural Association, George West, J. R. Nickeson, Robert Chalmers, B. N. Bugbey, and S. L. Wilson. They made the following report:

Sweet red, vintage of eighteen hundred and seventy-one—first choice, General West; second choice, J. R. Nickeson.

Sweet red, vintage of eighteen hundred and seventy; the committee ruled out all the wines of this vintage.

Sweet white, vintage of eighteen hundred and seventy-one—first choice, William Hood; second choice, Eberhart & Lachman; third choice, Robert Chalmers.

Sweet wine, vintage of eighteen hundred and seventy; ruled out.

Sweet wine, vintage of eighteen hundred and sixty-nine—first choice, Orleans Hill Vinicultural Association.

REPORT OF COMMITTEE ON SPECIAL WINES.

SACRAMENTO, September 25th, 1872.

To the President and Board of Directors of the California Vine Growers and Wine and Brandy Manufacturers' Association:

GENTLEMEN: The Committee on Special Wines beg leave to make the following report:

PORT WINE.

Premium diploma awarded as follows:

Port wine, vintage of eighteen hundred and sixty-nine, nine bottles in competition, to No. 27.

Port wine, vintage of eighteen hundred and seventy, eight bottles in competition, to No. 27.

Port wine, vintage of eighteen hundred and seventy-one, six bottles in competition, to No. 29.

SHERRY WINE.

Premium diploma awarded as follows:

Sherry wine, vintage of eighteen hundred and sixty-nine and older, six bottles in competition, to No. 70.

Sherry wine, vintage of eighteen hundred and seventy, five bottles in competition, to No. 27.

Sherry wine, vintage of eighteen hundred and seventy-one, two bottles in competition, to No. 29.

ANGELICA WINE.

No. 43, of angelica wine, was ruled out by the committee because there was no date on the bottles.

Premium diplomas awarded as follows:

Angelica wine, vintage of eighteen hundred and sixty-nine, one bottle in competition, to No. 29.

Angelica wine, vintage of eighteen hundred and seventy, five bottles in competition, to No. 29.

Angelica wine, vintage of eighteen hundred and seventy-one, three bottles in competition, to No. 29.

SPARKLING WINE.

Premium of twenty-five dollars awarded as follows:

Sparkling wine, vintage of eighteen hundred and seventy-one, two bottles in competition, to No. 27.

There was none in competition for the years previous to the above.

The committee were furnished two boxes of superior cigars, of California manufacture, by E. Eisenberg & Bro., of which we make special mention and recommend special consideration.

(Signed)
GEO. G. BLANCHARD,
L. P. McCARTY,
A. BARBIER,
Committee.

Names and residences being substituted for numbers, and corrections made to correspond with premium list, we have the following awards:

Exhibitors.	Residence.	Articles.	Awards.
M. Keller	Los Angeles	Port 1871	$25.
M. Keller	Los Angeles	Angelica 1871	$25.
M. Keller	Los Angeles	Angelica 1870	$25.
M. Keller	Los Angeles	Angelica 1869	Diploma.
George West	Stockton	Sherry 1866	Diploma.
George West	Stockton	No. 2 port 1871	Special.
Eberhart & Lachman	San Francisco	Port 1870	$25.
Eberhart & Lachman	San Francisco	Port 1869	Diploma.
Eberhart & Lachman	San Francisco	Sparkling muscat 1871	$25.
Eberhart & Lachman	San Francisco	Old malaga 1869	Special mention.
Eberhart & Lachman	San Francisco	Old madeira 1869	Special mention.
J. R. Snyder	Sonoma	Half zinfindel and native 1868	Diploma.
Robert Chalmers	Coloma	Burgundy	Special mention.
O. W. Craig	Sonoma	Malaga 1867	Diploma.
Eberhart & Lachman	San Francisco	Sherry 1870	$25.

REPORT OF THE COMMITTEE OF EXHIBITORS.

Of the exhibitors of special wines at the Fair, the following were present and examined the duplicates: B. N. Bugbey, O. H. Craig, Carl Strobel of the Orleans Hill Vinicultural Association, Robert Chalmers, J. R. Snyder, George West, J. R. Nickeson, and S. L. Wilson. These were constituted a Committee on Exhibition, and sampled the wines. After they had finished their work they submitted the following report:

California sparkling, first choice; sparkling muscat, second.

Port: Vintage of eighteen hundred and seventy-one—First choice, George West; second choice, Eberhart & Lachman; third choice, M. Keller. Vintage of eighteen hundred and seventy—First choice, Eberhart & Lachman; second choice, George West; third choice, M. Keller. Vintage of eighteen hundred and sixty-nine—First choice, Eberhart & Lachman; second choice, B. N. Bugbey; third choice, M. Keller. Vintage of eighteen hundred and sixty-eight—First choice, M. Keller; second choice, Eberhart & Lachman.

Sherry: Vintage of eighteen hundred and seventy-one—First choice, M. Keller. Vintage of eighteen hundred and seventy—First choice, George West; second choice, M. Keller; third choice, Eberhart & Lachman. Vintage of eighteen hundred and sixty-six—First choice, George West.

Madeira: Vintage of eighteen hundred and sixty-seven—First choice, George West.

Angelica: Vintage of eighteen hundred and seventy-one—First choice, Orleans Hill Vinicultural Association. Vintage of eighteen hundred and seventy—First choice, Charles Le Franck.

REPORT OF COMMITTEE ON MISCELLANEOUS ARTICLES, RAISINS, ETC.

To the President and Board of Directors of the California Vine Growers and Wine and Brandy Manufacturers' Association:

GENTLEMEN: We, the undersigned committee, appointed to award premiums on raisins and grape syrup, do make the following awards:

B. N. BUGBEY,
MRS. B. N. BUGBEY,
MRS. P. CLARK,
Committee.

Exhibitor.	Residence.	Article.	Award.
E. F. Aiken	Sacramento	Muscat Raisins	$50
J. R. Nickeson	Lincoln	Grape Syrup	$20

REPORT OF COMMITTEE ON MACHINERY, STILL, ETC.

To the President and Directors of the California Vine Growers and Wine and Brandy Manufacturers' Association:

GENTLEMEN: The undersigned committee, duly appointed to examine the machinery for crushing and stemming grapes, and other machinery used in this industry, and casks, beg leave to submit the following report:

First—For best still. Your committee find no still on exhibition, but only a model by George Johnston, of Sacramento. The committee do not undertake to pass upon the question whether the model is a still according to the meaning of your society. If it be so considered, then your committee award the premium for the best still on exhibition to George Johnston, of Sacramento.

Second—For the best grape crusher and separator, your committee report that they find that George Johnston, of Sacramento, exhibits the best.

Third—For the best and cheapest tank, cask, or butt, for wine or brandy, for storage, we find that J. Ochsner, of Sacramento, makes the best exhibition.

WILLIAM McP. HILL,
J. R. NICKESON,
CARL STROBEL,
Committee.

Exhibitor.	Residence.	Article.	Award.
George Johnston	Sacramento	Grape Crusher and Stemmer	$50
J. Ochsner	Sacramento	Best Tank, Cask, or Butt	$50
George Johnston	Sacramento	Best Still	$50

REPORT OF COMMITTEE ON GRAPES.

To the President and Board of Directors of the California Vine Growers and Wine and Brandy Manufacturers' Association:

GENTLEMEN: Your Committee on Grapes beg leave to submit the following report of awards. We would remark that we found a number of errors in the names of grapes on exhibition, and at the request of the Secretary, have attempted to correct these errors to the best of our knowledge; substituting for the name given, the name by which we know the grape which we deem incorrectly named. We would further remark, that there being no wine manufacturer on the committee, we hope the Standing Committee on Classification can and will correct any errors that we may have made in selecting what we supposed to be the best varieties for wine purposes, if the awards cannot be published without giving the names of the varieties in each.

WM. CANTELOW, Solano,
T. HART HYATT, San Francisco,
J. M. THOMPSON, Suscol,
H. W. CRAB, Napa,
Committee.

Exhibitor.	Residence.	Article.	Award.
J. H. Carrington	Florin	Best twelve varieties of table grapes: Muscat of Alexandria, Cannonball Muscat, Flaming Tokay, Rose of Peru, Black Hamburg, Black Spanish, Black Morocco, Fontainebleau, Black Malaga, Frankindale, Black Prince, White Malaga	$25
J. R. Rutter	Florin	Best six varieties of table grapes: Black Spanish, White Muscat, Black Hamburg, Flaming Tokay, Rose of Peru, Black Morocco	$20
James Goodwin	Sonora	Best three varieties of table grapes: Muscat of Alexandria, Flaming Tokay, Black Spanish	$15
E. Dane	Sonora	Best two varieties of table grapes: White Muscat of Alexandria, Flaming Tokay	$10
R. B. Blowers	Woodland	Best one variety of table grapes: Muscat of Alexandria	$20
J. R. Nickeson	Lincoln	Best twelve varieties of wine grapes: Zinfindel, Berger, B. Malvasia, Upright Burgundy, Y. Orleans, Red Framiner, Muscatella, White Reisling, Miller's Burgundy, Barbareaux, Golden Chasselas, B. Frontignon	$25
H. T. Hutchinson	Marysville	Best six varieties of wine grapes: White Reisling, B. Burgundy, Muscatella, Golden Chasselas, Zinfindel, B. Malvasia	$20
J. R. Nickeson	Lincoln	Best three varieties of wine grapes: White Reisling, Muscatella, Zinfindel	$15
H. T. Hutchinson	Marysville	Best two varieties of wine grapes: White Reisling, Zinfindel	$10
J. R. Nickeson	Lincoln	Best one variety of wine grapes: White Reisling	$20
Ira S. Bamber	Placerville	Best one variety of raisin grapes: Muscat of Alexandria	$10
H. T. Hutchinson	Marysville	For best and greatest variety of grapes	$60
J. R. Nickeson	Lincoln	For second best and greatest variety of grapes	$40

STATEMENTS OF EXHIBITORS.

STATEMENT OF J. R. SNYDER.

I. N. HOAG:

DEAR SIR: In reply to yours relative to the mode of making the brandy which I sent to the State Fair, I will state that the brandy placed on exhibition by me was made from the grape after the juice required for wine was pressed therefrom. The pomace was first put into a tank and fermented, a little water being put to it. After the fermentation was over, there was left what is termed piquette. This was poured into another tank that had been filled with pomace during the fermentation of the first tank which had been filled; in some instances the piquette was thus fermented over three times with other pomace.

Such was the material of which my brandy was made. The character of the soil is in some places gravelly; in others a decomposed volcanic deposit; some parts are vegetable mold, with a gravelly substratum. The aspect is south and southeast, protected on the north and west by hills from four to five hundred feet high. The variety of grape from whence the brandy was made was the Mission, or, so called, native grape. The still was copper, with steam applied. The brandy was filtered through an apparatus made for that purpose.

My vines are, as a general thing, planted eight by eight feet; in some places I have them planted four by eight feet. I consider eight by eight the best distance in a country like ours, where there is no rain for so long a period of time. The vineyard was planted with cuttings, a hole being dug for each cutting.

I consider it best to plow up the ground and use it for several years for grain or grass crops. The loss in cuttings will not be so great where this course is pursued, as the cultivation of the land destroys many insects.

The pruning is low, say about one foot from the ground; this is best where there is wind; and the lower the vine to the ground, the richer the grapes are in saccharine matter, and the earlier the ripening thereof.

I judge that on an average, a vineyard seven or eight years old, on such land as mine, which is not rich, produces from eight to ten pounds of grapes to the vine, there being six hundred and eighty vines to the acre.

In the treatment of grapes for red wine, the grapes are rubbed from the stems, crushed, and fermented—all the material together. For white wine, the grapes are crushed on the stems, the juice pressed out and fermented alone. In my fermenting room I keep the temperature uniform, and at about seventy to seventy-five degrees Fahrenheit. The grapes should be ripe enough to produce from twenty-four to twenty-five per cent of saccharine matter. My vineyard is part eleven years old, and a part six years. It will take about thirteen pounds of grapes to make a gallon of must at my vineyard.

J. R. SNYDER.

STATEMENT OF SCHELL, KRAUSE & CO.

To I. N. HOAG, *Secretary California Vine Growers and Wine and Brandy Manufacturers' Association:*

Schell, Krause & Co., Glen Clara wine, from Red Mountain Vineyard.

WINE.

Two bottles Glen Clara No. 1, eighteen hundred and seventy-one, two bottles Glen Clara No. 2, eighteen hundred and seventy-one, two bottles hock, eighteen hundred and seventy-one, all made from California Mission grape. Soil, conglomerate; altitude, foothills, Stanislaus County; aspect of locality, undulating; age of vines, from four to ten years; planted seven feet apart; pruned back to three good eyes; planted with cuttings; produced two hundred and fifty tons to fifty acres. "One" and "two," grapes very ripe; hock, just ripe. Racked January first, eighteen hundred and seventy-two, and in August, eighteen hundred and seventy two. Not fermented on the skins.

Two bottles port, eighteen hundred and sixty-nine, and two bottles madeira, eighteen hundred and sixty-nine, from California Mission grape. Port fermented on the skins; madeira fermented in casks, without skins; grapes very ripe in both kinds; racked off as many as three times, but can't give the times; added some grape spirits to both, but can't tell how much.

Two bottles sherry, eighteen hundred and sixty-eight, California Mission grape. Fermented in casks, not on the skins; racked as often as three times; added grape spirits to bring it up to nineteen per cent, and clarified with shred isinglass in the usual way; so simple needs no description; grapes quite ripe.

Two bottles red wine, eighteen hundred and sixty-nine, California Mission. Grapes very ripe; racked as often as three times; free of spirits; clarified last Winter, with white of eggs; nine eggs to one hundred and fifty gallons.

BRANDY.

Three bottles No. 1, vintage of eighteen hundred and sixty-eight, made from pomace of the grape and wine; California Mission; copper still, with three condensers; heat applied by furnace; not rectified nor flavored; proof.

Two bottles No. 2, made the same as above; vintage of eighteen hundred and seventy-one.

It is utterly impossible to give you samples of the grape, and we deem it entirely unnecessary, as every one knows what the California Mission grape is.

The above is contained in two cases, directed to your care, shipped by rail to Sacramento.

With profound regard, we remain yours truly,

SCHELL, KRAUSE & CO.,

Proprietors of Glen Clara wine, made at Red Mountain Vineyard.

STATEMENT OF M. KELLER & CO.

To the Secretary California Vine Growers' and Wine and Brandy Manufacturers' Association:

SIR: I enter for competition the following wine and brandy, the product of my vineyards:

Brandy of 1870 and 1871	3 bottles each.
White wine, 1867, 1868, 1869, 1870, and 1871	3 bottles each.
Port, 1868, 1869, 1870, and 1871	3 bottles each.
Angelica, 1869, 1870, and 1871	3 bottles each.
Sherry, 1869, 1870, and 1870	3 bottles each.
El Dorado, 1870 and 1871 (sweet wine)	3 bottles each.
Wine bitters	3 bottles.

The brandy which I exhibit for the years eighteen hundred and seventy and eighteen hundred and seventy-one was made from the entire juice of two varieties of grapes from the Cognac country, Department of the Charente, La Folle Blanc and La Folle Noire. As the vines are now six years old, I expect that the brandy of eighteen hundred and seventy-two, from the same grape, will develop a higher bouquet, peculiar to genuine cognac. The grapes were grown from rooted plants, upon a deep, sandy loam and a porous bottom, within the limits of the City of Los Angeles, from my vineyard, "The Rising Sun."

The brandy was made in a plain copper still, heated by steam, double distilled and rectified, without any addition of flavoring stuff whatever, except a little concentrated grape juice, to give it the necessary color.

WINES.

The white wines of eighteen hundred and seventy-one and eighteen hundred and seventy were made principally from the Mission grape, with admixtures of two varieties of grape from the Rhine, the Muscatelle and Orleans. The wines of eighteen hundred and sixty-nine, eighteen hundred and sixty-eight, and eighteen hundred and sixty-seven were made exclusively from the Mission grape. The Mission grape was planted from cuttings, and are fourteen years old. The foreign grapes were planted from rooted plants, and are eight years old; all upon a deep, sandy loam, and a porous subsoil. The Mission grapes are planted six feet apart each way, and the foreign vines seven feet apart each way; cultivated with the plow and cultivator; irrigated during the Winter rains; the pruning is the alternate renewal system, with three and four fruit-bearing eyes; average about six tons to the acre, and yield nine hundred gallons of juice for wine. The wines were not fermented on the skins.

The "El Dorado" brand which I exhibit is made from the Grizzly Frontignan and the Deccan Superbe, half of each, from vines eight years old, from rooted plants, and from my vineyard, "The Rising Sun."

The wine bitters were made from the Mission grape and the Sencial de Madere, desiccated, half of each, medicated with the most health-renovating tonic herbs, as indicated by the great Professer Liebig, for the permanent restoration of the wasted vital forces.

PORT WINE.

The port wines that I exhibit were made from the Tinta Francisca, from the Upper Douro, the Touriga of Portugal, and the black Mission grape, the former from rooted plants and nine years old, and the latter sixteen years old, and originally planted from cuttings. The juice was fermented on the skins; the grapes were desiccated when full ripe, drawn off as soon as thoroughly fermented, and the wine drawn off four times during the year, and when thoroughly matured, clarified and bottled. The grapes were grown on my vineyard the "Rising Sun;' southeastern aspect, two hundred and twenty feet above the level of the sea.

SHERRY WINE.

The sherry I exhibit was made from the Spanish grapes called Pedro Ximenes and Maccabeo, planted from rooted plants, nine years old; the Aragonias, ten years old; and the Mission grape, sixteen years old—one fourth each cultivated in my vineyard the "Rising Sun," same as the foregoing, and the wine made and treated in all respects as the white wine heretofore explained, producing five tons to the acre, and eight hundred gallons.

ANGELICA.

The angelica which I exhibit was made from the Panse Musquie, the Muscat Noir de Jurd, and the Mission grape, equals of each desiccated, and the juice concentrated. The foreign vines from rooted plants, and nine years old; the Mission grape sixteen years old; cultivated with the plow and cultivator. The mode of making and treating the wine is the same as white wine, already described.

WINE MAKING.

The grapes are gathered when due ripe, at repeated pickings, according to maturity; crushed by the "Crusher and Stemmer" invented by C. Wadhams, under my special supervision. The resulting juice is raised into large vats to settle, so as to get rid of pulp and all solid matter calculated to give the new wine what is called gout de tenoir; then drawn off into casks to ferment. When the tumultuous fermentation gives signs of slackening off, air is freely pumped into the fermenting liquid, and the fermentation revived and prolonged to completion, according to the instructions of the great Pasteun. The fermented wine is drawn off from the lees as soon as it has settled; drawn off three times each year; clarified and bottled as you see it.

N B.—It is proper to remark here that airification should be effected only during fermentation, when the liquid is charged with carbonic acid and alcoholic yeast.

For the vindication of truth, I beg to state that the pretended "air treatment" of D'Heureuse was a shameless purloinment of the discovery of M. L. Pasteun, of the French Academy, published in eighteen hundred and sixty-six, and communicated by me to D'Heureuse for the first time, and patented by him in eighteen hundred and sixty-seven, as an addenda to his senseless patent obtained previously, the object of which was to concentrate wine for convenient transportation without distillation—a physical impossibilty. He had even the effrontery to ask me afterwards for a royalty.

Your obedient servant,

M. KELLER.

STATEMENT OF B. N. BUGBEY.

I. N. HOAG, *Secretary California Vine Growers and Wine and Brandy Manufacturers' Association, Sacramento:*

DEAR SIR: In compliance with Rule First, I hereby state that the brandy placed on exhibition at the Wine Growers' Fair, at the State Agricultural Society's Pavilion, this season, was all made or distilled through a Johnston Still, and neither rectified nor flavored. Sufficient burnt sugar was added to give it color, otherwise it is the pure product of the grape. The heat was applied by steam.

The wines were all natural fermentation, except the port and chambertin. They were subjected to two hundred degrees Farenheit, for the space of thirty days, in a close tank, holding over ten thousand gallons, and concentrated one fifth. The port was placed on and subjected to heat sixty days after it had been drawn from the fermenting tub where it was first fermented on the pulp and skins. The chambertin was treated in a like manner. All the wines that I placed on exhibition were fermented on the pulp and skins.

Respectfully yours, B. N. BUGBEY.

STATEMENT OF O. W. CRAIG.

I. N. HOAG, Esq.:

DEAR SIR: I send, per express, samples of my wine and brandy for exhibition at the State Fair. The first is a

HOCK WINE,

Vintage of eighteen hundred and sixty-seven. The vineyard has an elevation of about one hundred and fifty feet above tide water. It is situate in Sonoma Valley, Sonoma County, California, near the foothills of the Sonoma Mountains. Rooted vines were planted. The wine is made from a mixture of foreign white grapes, principally reisling, tramina, and muscatella. The grapes were crushed and pressed, and the juice run into open tanks of about one thousand gallons each, and suffered to remain till just before fermentation set in. Then all the scum was carefully skimmed off and the wine drawn off into pipes and thoroughly fermented. It was racked off frequently, in the usual way, and after two and a half years it was bottled, being first clarified with isinglass. It was then sent to China, where it remained a year and a half, and was returned to me. In order to comply with the rules of the State Society the wine was emptied into these bottles, without any further treatment or clarification. The soil is a red gravelly loam, with a considerable mixture of clay. The second is

AMBER MALAGA,

Of the vintage of eighteen hundred and sixty-seven, made from the Mission grape, raised in the same vineyard as before mentioned. Rooted vines were planted.

PROCESS OF MANUFACTURE.

The grapes were crushed and immediately pressed, and the wine then boiled in a copper still for four hours. It was then cooled down to sixty degrees, by passing cold water in pipes through it, after which it was run on the pomace and thoroughly fermented. It has been frequently racked off in the usual way. The third is

MUSCATELLA,

Of the vintage of eighteen hundred and seventy-one, raised in the same vineyard, and made from the Muscat of Alexandria grape. It has not been fermented, but the grapes were crushed, immediately pressed, and eighteen per cent of pure grape brandy added. The vines, when planted, were rooted.

The grape brandy is made from Mission grape, piquette, and the lees of the Mission grape wine, raised in the same vineyard as the foregoing. The still is a copper one, with one doubler and two condensers. It was distilled on the Schleifer process, by uniting the oxygen of the atmosphere with the matter to be distilled, during the process of distillation. It was then rectified by passing it through charcoal and sand, and colored with burnt sugar. The still was heated by a furnace.

Yours respectfully, O. W. CRAIG.

STATEMENT OF EBERHART & LACHMAN.

I. N. HOAG, Esq.:

DEAR SIR: We would beg leave to submit the following explanations pertaining to our wines and brandies. Since eighteen hundred and sixty-eight we have been manufacturing all our wines and brandies at Sacramento, from selected grapes, of El Dorado, Placer, Yolo, and Butte Counties, also from the immediate vicinity of Sacramento.

Our dry muscatelle of eighteen hundred and seventy-one is made from the Muscat of Alexandria grape, grown in El Dorado.

Dry catawba, also sweet, of eighteen hundred and seventy and eighteen hundred and seventy-one, are made from the catawba grape, grown in El Dorado.

The white wines of eighteen hundred and sixty-nine, eighteen hundred and seventy, and eighteen hundred and seventy-one are made in Sacramento, from grapes grown in the neighborhood of Oroville.

All our sparkling (California) are made from the choicest Sonoma and Green Valley wines, most carefully selected.

Sparkling muscat is made from the choicest of muscat grapes, grown in Green Valley.

Old hock of eighteen hundred and sixty-nine and eighteen hundred and seventy is made in Sacramento, from the mission grape.

Old malaga of eighteen hundred and sixty-nine is made in Sacramento, from the malaga grape, foreign.

Sweet muscatel of eighteen hundred and seventy and eighteen hundred and seventy-one is made in Sacramento.

Port wines of eighteen hundred and sixty-eight, eighteen hundred and sixty-nine, eighteen hundred and seventy, and eighteen hundred and seventy-one is made from grapes grown along the old Stockton road.

Old madeira wine of eighteen hundred and sixty-nine is made in Sacramento, from a foreign grape.

Sonoma claret of eighteen hundred and seventy is made in Sonoma, from the mission grape.

Red zinfindel of eighteen hundred and seventy is grown and made in Sonoma, from the zinfindel grape.

Our mountain vineyard wines of eighteen hundred and seventy and eighteen hundred and seventy-one are made in Sacramento, from selected mountain grapes.

Angelica of eighteen hundred and seventy and eighteen hundred and seventy-one is from grapes grown in the foothills.

Sherry we make at Sacramento.

We are, yours truly,

EBERHART & LACHMAN.

STATEMENT OF GEORGE WEST.

I. N. Hoag, Esq., *Secretary California Vine Growers' and Wine and Brandy Manufacturers' Association:*

Dear Sir: My wines are about all made from the California grape.

The sherry of eighteen hundred and sixty-six was from California, dried several days, and made in the usual way of making white wine, without using spirit.

Sherry of eighteen hundred and seventy and eighteen hundred and seventy-one was one fourth boiled juice, added to common California white wine; no spirit.

Port of eighteen hundred and sixty-six was from California grape, dried; no spirit; fermented about six days.

Port of eighteen hundred and seventy and eighteen hundred and seventy-one was from California grape, dried; fermented from six to seven days. Eighteen hundred and seventy-one has one fourth boiled juice added.

White sweet wine, from California grape, well dried; made in the usual way of making white wine.

Dry white of eighteen hundred and seventy-one, one fourth Frontignan grape, three fourths California.

Dry red of eighteen hundred and seventy, from the Red Frontignan and California mixed; fermented ten days.

Dry red of eighteen hundred and seventy-one, one half zinfindel, one half California grape, and fermented ten days.

Malaga of eighteen hundred and sixty-seven was made from California grape; fermented on the skins for ten days; no spirit. Was made for common red wine; the change took place after the fifth year.

I do not think of anything more in regard to the wine.

Yours respectfully, GEORGE WEST.

STATEMENT OF ORLEANS HILL VINICULTURAL ASSOCIATION.

LIST OF WINES

Entered by the Orleans Hill Vinicultural Association, for competition, according to the rules of the California Agricultural Society, for the year 1872.

Wines.	Vintage.
Port	1869, 1870, 1871
Tokay	1869, 1870, 1871
Reisling	1867, 1868, 1869, 1870, 1871
Orleans	1869, 1870, 1871
Muscatel	1870, 1871
Catawba	1869, 1870, 1871
White	1869, 1870, 1871
Zinfindel	1872

All the above wines are made of such grapes as their labels indicate. The sample of this year's vintage (eighteen hundred and seventy-two) are of the zinfindel grapes, and were pressed on the ninth day of August last. The hills where the vines are growing are of a lime or chalky character, and have a southwesterly position. The vines are planted six feet apart, and pruned to spurs longer or shorter, according to the kind of vine. The juice did not ferment on the berries. The must, or sugar scale, showed itself at from eighty-five to one hundred and twenty-seven degrees (Oechler scale) at the time of picking the grapes. Free, or tartaric acid, three to seven one thousandths. The variation of sugar is owing to the kind of grapes.

ORLEANS HILL VINICULTURAL ASSOCIATION.

STATEMENT OF NEWHALL & CULBERTSON.

Moccasin Vineyard is situated in the foothills of the Sierra Nevada Mountains, on Moccasin Creek, Tuolumne County. It has an elevation of about five hundred or six hundred feet above the level of the ocean, surrounded by hills fifteen hundred or sixteen hundred feet high, on the northeast and southwest. The soil is red mountain land, with a slope to the southwest—nearly level. Planted with fifteen years old rooted Mission grape vines, six by eight. Trimmed stump fashion, one foot from ground—eight canes, with three buds on each cane. Plowed and cultivated in March, and irrigated twice a month from June to September. Produces four tons of grapes and six hundred gallons of wine per acre. Grapes picked on November first, and crushed with rollers lined with canvas. Pressed before fermenting, and racked on January first, again in March, and once a year thereafter in March. Sherry wine made same as above, from Mission grapes, except picked on October twenty-second, and placed in building and dried until December first, when they are crushed and pressed very hard before fermenting, and treated as above. Samples of white and sherry wines are entered, to be classified by your Committee on Wine, as sweet or dry.

NEWHALL & CULBERTSON.

STATEMENT OF CLEMENT V. DETTEN.

I. N. HOAG, Esq.:

DEAR SIR: I take the liberty of sending to your care, for exhibition, by Wells, Fargo & Co.'s Express, one box containing six bottles—two samples of wine, one dry wine, made in eighteen hundred and seventy; the other of the vintage of eighteen hundred and seventy-one. When my time as a magistrate permits, I will be there—some day next week—otherwise enter my name for a membership, and I will send you the money.

The wine sent is made from native (Mission) grapes. Character of soil, black adobe, with subsoil containing some lime; altitude of Stockton; aspect of the vineyard, exposed to the sun on all sides; age of the vines, eleven years; distance apart each way, five feet; no irrigation; cultivation consisted in cross-plowing and harrowing in Winter; but last season the vineyard was spaded; Summer pruning done; vineyard planted with rooted vines. Number of tons of grapes to the acre, about four; number of gallons of wine produced to the acre, six hundred. Juice not fermented on the skins. Grapes, when picked and crushed, were well ripened, but not dried to raisins. Heureuse's air treatment used at the time of first hot fermentation, and wine drawn over about five times a year.

I remain, respectfully, your obedient servant,

CLEMENT V. DETTEN.

STATEMENT OF J. W. STOUGHTENBURG.

Wine manufactured from the Mission grape. Soil, a kind of sandy sediment. Pure grape juice; no sugar or water used in its manufacture. Vines pruned low; vineyard ten years old; stored in oak tanks.

J. W. STOUGHTENBURG.

STATEMENT OF WILLIAM HOOD.

MAJOR R. BECK, *Secretary:*

DEAR SIR: At the request of your brother-in-law, William Hill, I have sent a box of wine for exhibition at the State Fair. I have sent three bottles of eighteen hundred and seventy-one brandy, distilled from the pomace of the native grape; three bottles eighteen hundred and seventy ditto; three bottles eighteen hundred and seventy-one white wine; three bottles eighteen hundred and seventy ditto; three bottles eighteen hundred and seventy-one red wine; three bottles angelica, eighteen hundred and seventy; also, two bottles eighteen hundred and sixty-six ditto, and two bottles of eighteen hundred and sixty-seven. These four bottles may be exhibited or not, as you please, or we can drink them when I come up. The white wine of eighteen hundred and seventy, and eighteen hundred and seventy-one, were made from native grapes, free as it run from the press, without pressing; the red wine was made from half native and half zinfindel; the angelica has about ten per cent of brandy added, which stops the fermentation at the sweetness that the wine retains made from native grapes.

Yours respectfully,

WILLIAM HOOD.

STATEMENT OF A. V. LAMMOT.

I. N. HOAG, Esq.:

DEAR SIR: Herewith please find three bottles of white wine, of the vintage of eighteen hundred and sixty-seven, which I made here from the Mission grape grown on my vineyard, which is situated in Sonoma Valley, about seven miles above the town, on the hillside west of the valley. The wine is pure, containing only the juice of the grape, and whatever of flavor it may have is derived from the grape alone, never having been in any package that had previously contained anything but wine grown on this vineyard. It has never been subjected to any process or treatment other than ordinary cellar care. It is in every respect a natural wine, never having been even clarified.

I remain, truly yours,

ALFRED V. LAMMOT.

P. S.—I suppose this wine will come under the head of California sherry.

STATEMENT OF GRAMBART & WELLS.

I. N. HOAG, *Secretary, etc.:*

DEAR SIR: We herewith send you per Wells, Fargo & Co.'s Express, one box containing samples of wine, vintage of eighteen hundred and sixty-six, which we wish to have placed on exhibition at the Fair. This wine was made from the Mission variety of grapes. Soil, light adobe; subsoil, clayish; altitude about one thousand feet. Our vineyard is situated on the head of Willow Spring Creek, near Drytown, Amador County; rolling country on each side; vines three years old, planted ten feet apart. We plow and cultivate the vines twice during the season, working around the vines with vineyard hook. Prune early in Spring, leaving from three to six spurs on a vine, and from two to three buds on a spur. We planted rooted vines, but made no account of the quantity of grapes per acre that year. It took about fourteen pounds of grapes to make one gallon of wine. The wine was run from the press into casks, and not fermented on the skins. The grapes were picked when fully ripe, stemmed, crushed, and pressed. After fermentation the wine was drawn off; since then kept the cask full.

Yours truly, GRAMBART & WELLS.

STATEMENT OF IRA S. BAMBER.

The soil on which the grapes were grown from which those raisins were made, is a red loam, rather rocky, broken, square rock; subsoil the same as surface. My vineyard lies on a sidehill, facing the south. I commence picking for raisins as soon as the grape is sweet and perfectly ripe. I have experimented in different ways in drying them, and I find that the simplest way is the cheapest and best; that is, to level off a piece of ground of sufficient size to spread out the amount of grapes I wish to dry, and, if the soil is loose or inclined to be dirty, spread over it clean sand, or anything that will absorb the moisture of the grape; then I spread the grapes as close as I can lay the bunches to each other. It must be borne in mind that this mode of drying will only answer in the dry part of the season. Those raisins that I have on exhibition were dried in this manner. As soon as they are dry, I pack them in the boxes as you now see them. They are made of Muscat of Alexandria grapes.

IRA S. BAMBER.

STATEMENT OF FULDA & SONS.

I. N. HOAG, ESQ.: After arriving at home and considering the matter over, I find that we can make redwood casks of the capacity of three thousand five hundred gallons for from five to six cents per gallon, and guaranteed in every shape; made of split lumber, and steamed for a week, and well seasoned. For two thousand five hundred to three thousand gallons, for six to seven cents. All casks and tanks are cheaper by the gallon as they increase in size. After being more thoroughly prepared, we can make them cheaper. Pipes can be made for from seven to eight cents. All lumber used by us has been steamed for one week. We have to steam the staves a second time in order to bend them. Other coopers, in order to imitate us, steam their staves for a couple of hours in order to bend them. We have found that it is an absolute necessity to steam redwood for at least a week, then dry, and resteam, in order to bend them, and to insure the absence of injurious acids. Even then, boiling will still extract color.

FULDA & SONS.

STATEMENT OF R. B. BLOWERS.

Grapes raised on light sandy soil, without irrigation; were not quite ripe when made into raisins, on account of the length of time necessary for drying in season for the Fair. They should be picked thoroughly ripe. They were spread on paper on the ground; turned while the dew was on and the stems damp, when the grape was two thirds dry. When sufficiently dry, put in large boxes, and sweated a few days; then boxed for market.

R. B. BLOWERS, Woodland.

P. S.—The variety of grapes are those known as the Malaga Muscatelle.

STATEMENT OF SIDNEY SMITH.

I. N. HOAG, ESQ., *Secretary:*

DEAR SIR: I received your note of the thirteenth instant—a written call for the members of the California Vine Growers' and Wine and Brandy Manufacturers' Association to meet in the Masonic Hall on the twentieth instant, with a request from you that I should hand in a statement of the manner in which I cured the raisins that I had on exhibition at the State Fair of September last.

I will comply by saying that after carefully picking the grapes, which should be perfectly ripe to make good raisins, a portion of the first gathering (the bunches) were laid on hurdles for drying in the sun, and another portion were hung by the stems upon trellises, or cross-bars, also to dry in the sun. About ten or twelve days after I gathered a quantity more of large bunches, and quite fully set, for which I prepared a place on a bank of pure sand, which was left by the floods in a portion of our vineyard. They were carefully laid upon the burning sand (as it was then), making a bed of some three and a half or four feet in width, so that the center could be easily reached on either side, for the purpose of handling or turning them. They soon began to show signs of curing. They colored very evenly, the under side as well as the top, and also through the center, where the clusters were compact and large. They were not moved or turned but three or four times in the process of curing; they were not protected from the dews. They were fully cured before those that were on the hurdles or trellis.

I should think this method of curing, when practicable, much more expeditious than any other way, except by artificial heat. How they would cure on any other soil but sand I am not prepared to say. The variety of grape was the Muscat of Alexandria.

Respectfully yours,

SIDNEY SMITH.

STATEMENT OF E. F. AIKEN.

To the Committee on Raisins on exhibition before the Vine Growers' and Wine and Brandy Manufacturers' Association:

GENTLEMEN: In compliance with the rules of the association, I beg leave to offer the following statement concerning the samples placed upon exhibition by the undersigned:

The raisins before you were made from the Muscat of Alexandria grape, grown about one mile east of Sacramento; the soil a dry, sandy loam, with clay subsoil. The grapes were picked, or gathered, from the vines on the tenth day of September, and made into raisins by exposure to the sun in the open air, spread upon boards. They were carefully turned three or four times while curing. They were taken from the boards on the eighteenth, and pressed into the boxes on the twentieth, of September, by using a cider press. The process of making raisins from this grape (which I believe to be the best raisin grape we have) is very simple, and requires but little practice and experience to make as good a raisin as the best imported from Europe. The most important part of the operation, in my opinion, is to know the proper stage of curing to stop. This is a point in the process which cannot be gained by theory—which can be learned only by practice and repeated and varied observation. No correct knowledge on this important point can be imparted through an explanation or written statement of this kind concerning the process of making raisins.

In curing raisins, especially in the open air, the operator will from necessity be obliged to be governed by circumstances, such as location, temperature of the air, amount of sunlight, the condition of the grapes in regard to ripeness, when picked from the vines, etc. Consequently, no stated time can be set for curing the grapes and making into raisins. Actual experiment alone will give the desired knowledge.

There is a difference of opinion among grape growers concerning the best and most economical method to be adopted to cure our grapes and make a raisin that will take well in the market, that will keep well, and meet all the demands of the trade, and by its own merits abolish the almost universal prejudice which now exists against a home-made article. This difference of opinion is the natural result of the difference in location and the different character of the soils of the parties who are raising grapes and making raisins. Some advocate the plan of cutting the bunches off and laying them on the ground under the vines until cured; others advise to cut the stem of the bunches partially off, or twist the stem around, which in either case will check the flow of sap, and cause the grape to dry; while others pick the grapes and spread them upon boards prepared for the purpose. The first mentioned, having a soil of a clay nature suitable for his purpose, with a hard and smooth surface, readily absorbing the heat during the day, to be thrown off at night, and far enough from low lands to be free from the dewfall, finds his plan to work well, and advocates it accordingly. While the last mentioned, being differently located on lower land, of a sandy nature, perhaps near a watercourse, surrounded by orchards and shrubbery, where the atmosphere condenses toward evening and makes a heavy dewfall, finds the above plan will not work at all. His bunches, if partly cut or twisted, and left to cure on the vines, from the reflection of the sun's rays on the sand, are soon cooked or dried to a crisp on one side before the other side becomes cured at all, or if picked and laid on the sand, meet with like result. Consequently, he favors the plan of spreading upon boards. Different circumstances require different treatment of the grapes to produce like results.

I am of the opinion that all methods of open air curing of grapes, as well as other fruits, will soon be discarded, and plans adopted for curing in dry houses by heated air. We must from necessity adopt this method if we wish to make raisins in large quantities, and the sooner it is adopted the sooner we will be able to supply the home demand, and have another article added to our list of exports.

Many reasons might be mentioned here why we should adopt the plan of using dry houses. One is, that thereby we can have control over the grapes in large quantities, and hasten the curing to its minimum limit of time. There are many localities where the grape does not become sufficiently ripe and sweet to make a good raisin in season to cure them properly in the open air. In many locations they are not sufficiently ripe until the twentieth of September, when the days are becoming short, and with heavy dews at night, requiring much longer time for curing, and consequently great risk and loss.

That raisin making, in connection with fruit growing generally, or as a branch of business by itself, can be made a paying business, has been fully demonstrated. We have a soil and climate that cannot be surpassed for the production of the best raisin grapes, and with the employment of capital in it, skillfully directed, we would soon be able to supply the trade of the whole Union.

E. F. AIKEN.

FRUIT DISTILLING.

To the honorable the Senate and Assembly of the State of California:

The undersigned, a committee appointed on behalf of the California Vine Growers' and Wine and Brandy Manufacturers' Association, would respectfully present the accompanying preamble and concurrent resolution, and ask that your honorable body may be pleased to pass the same, in order that it may be forwarded, with instructions to our Senators and Representatives in Congress.

B. D. WILSON,
H. LARKIN,
L. M. SCHRACK,
GEO. JOHNSTON,
A. HEUSE,
ROBT. CHALMERS,
I. N. HOAG,
A. SCHELL,
S. DODD,
MR. CALDWELL,
S. L. WILSON,
Committee.

WHEREAS, The grape-growing and wine-making interest of California is now the third most important branch of agriculture in this State, and although comparatively in its infancy as yet, it already embraces a permanent investment of over thirty million dollars capital, and, if properly fostered and encouraged, and not oppressed or restricted by adverse legislation, either State or national, it bids fair to exceed in value any other agricultural interest in the State within the next three years; and whereas, the existing Internal Revenue Law of the United States, although greatly modified in its exactions and provisions, and simplified in its workings (as it applies to the distillation of brandy from grapes and other fruits) within the past two years, still works onerously and unjustly to the fruit-distilling interest of the Pacific coast, in the following particulars, viz:

First—Inasmuch as the brandy distilled from grapes and other fruit s debarred the right of "drawbacks," as now allowed by law to other alcoholic spirits made here and shipped for consumption to a foreign country, the fruit distiller of California is unable to compete in price with the manufacturers of France and other countries in the foreign markets of Mexico, South America, British Columbia, China, Japan, Australia, and the islands of the Pacific; which markets, by reason of their proximity and the facility of cheap transportation, would naturally be supplied from the Pacific coast, but for the onerous burden imposed by denial of said privilege of "drawbacks."

Second—The present warehouse system is inapplicable to the fruit-distilling interest, because of its being so complicated and expensive. In lieu of that system, as now established, so far as the same applies to fruit distillers, the law should require that the spirit so distilled from grapes or other fruit, shall be gauged on or before the thirtieth of April of each year, that being the close of the distilling season, and the end of the license year. After being gauged the liquor shall be allowed to remain upon the premises, under charge of the manufacturer, upon his giving a good and sufficient bond to the Government, to be approved by the United States Assessor of the district, that he will pay the tax upon the same within two years from the date of gauging, or sooner, if removed from the premises.

Third—Another hardship in the requirements of the revenue law as it now exists is the "barrel tax," which operates oppressively by preventing the working up of material from small vineyards, or the doing of custom work for those who are unable to own their own stills, and thereby greatly lessening the annual yield of spirits from which the Government should derive revenue.

Fourth—Under the law as it now exists, the distiller who adds a particle of grape sugar or other saccharine matter for coloring purposes to his brandy, becomes in the eye of the law a rectifier, and is compelled to take out a rectifier's license, at great trouble and expense, or suffer arrest and confiscation of his property; whereas, in point of fact, the sugar so added is a necessity to complete the manufacturing process, and is not intended to be, nor is it in any degree a rectifying process as understood by chemistry or commerce, and without its addition the spirits made would have no recognition as brandy in the market, but be reckoned simply as crude or raw spirits; therefore,

The People of the State of California, represented in Senate and Assembly, do resolve as follows:

Resolved by the Assembly, the Senate concurring, That our Senators in Congress be instructed, and our Representatives requested, to lay the facts set forth in the preceding preamble before that body, and earnestly endeavor to obtain through Congress such relief and modification of the working of the Internal Revenue Law, as applied to fruit distilling, as is set forth in the foregoing preamble.

Resolved, That his Excellency, Governor Booth, be requested to forward a copy of the foregoing resolution to each of our Senators and Representatives in Congress.

CALLED MEETING.

At the time of the Fair so many of the wine growers were in the midst of the vintage season that it was thought best not to hold a meeting of the exhibitors to test the duplicates of brandies and wines exhibited, and it was decided to hold a called meeting after the busy season was over. Accordingly, such meeting was called for the twentieth of January, eighteen hundred and seventy-three.

At this meeting, in addition to the examination of the duplicates of wines and brandies, reports of which are appended to the regular reports of committees on former pages, other business was transacted, as follows:

The association was called to order by Vice President J. R. Snyder, in the absence of the President, and the minutes of the last meeting read and approved.

PAINTINGS OF GRAPES, ETC.

Secretary I. N. Hoag stated that the committee that had been appointed to procure paintings of grapes were not ready to report. They expected to receive additional bids; and those that had been received were not sufficiently specific.

The committee were given further time to report, and they will probably submit their report to-day.

BY-LAWS FOR THE ASSOCIATION.

Hill moved that the committee that had been intrusted with the duty of drafting a series of by-laws be continued, and that they be required to report at the next annual meeting.

The motion prevailed.

THE VIENNA EXPOSITION.

Hill moved that the Chair appoint a committee of three, of which the Chairman should be one, to send samples of California wines to the Vienna Exposition, and to select a delegate to represent the association.

The motion prevailed, and J. R. Snyder, W. McP. Hill, and W. S. Manlove were appointed on the committee.

THE MANUFACTURE OF BRANDY.

The President announced that the next thing in order was the hearing of the report of the Committee on the Manufacture of Brandy.

George Johnston, of the committee, read the report, as follows:

MR. PRESIDENT AND MEMBERS OF THE ASSOCIATION: At our March meeting your Committee on the Manufacture of Brandy made a report, in which they took the position that a perfectly pure brandy can be made, by proper fermentation and distillation, from the marc of the grape. The experience of the past season fully convinces us of the correctness of our position, although in opposition to the opinions of some of the most eminent chemists and manufacturers in Europe.

The ingredient most difficult of separation with a common still, and totally impossible of separation where continuous distillation is used, is the acetic ether. The sample herewith submitted boils at one hundred and thirty degrees Fahrenheit; its specific gravity is eight thousand nine hundred and thirty-six ten-thousandths, corresponding with that of alcohol at thirty-seven over proof. It combines with water or spirit of any proof, is entirely free from fusel oil, of a pungent, acrid, and most disagreeable odor, and in our opinion the ingredient Duplais, Auberger, Villard, and others found impossible to remove from marc brandy.

Duplais, in speaking of marc brandy, says:

> "Some savants, among others M. Auberger, attributed this to an empyreumatic oil, or to a volatile oil derived especially from the skin of the grape. These hypotheses were powerless to explain the coppery taste and the greenish tint which indicated the presence of copper.
>
> "The experiments made by Higgins, of Jamaica, on molasses, which, when heated by the common method, gives this empyreumatic taste, persuaded M. Villard that it was due to the solution of copper in the acetic ether, which, according to this chemist, is produced by the distillation of substances brought too directly in contact with a brisk fire having a heat of four hundred degrees or five hundred degrees. If the evaporization of alcohol can be effected by means of an agent which does not yield so great a degree of heat—the stream of water, for example, which does not exceed a temperature of one hundred degrees—it is to be presumed that this heat, being sufficient to vaporize the alcohol, which is volatilized at seventy-eight degrees, cannot develop either the empyreumatic or peculiar oils of Auberger, or the acetic ether of Higgins."

From the above quotation it will be seen that they were of the opinion "that the acetic ether was produced by the distillation of subtances brought too directly in contact with a brisk fire having a heat of four hundred degrees or five hundred degrees, and that by using steam instead of the direct action of fire, neither the empyreumatic or peculiar oils of Auberger, or the acetic ether of Higgins, could be developed.

On this point we are firmly convinced, after five years experience in the manufacture of brandy from wine and marc, that the acetic ether is formed in proportion to the quantity of acetic acid in the fermented wine or marc; that sour wine will produce as much ascetic ether as marc of equal acidity, but as marc is generally not so carefully fermented as wine, it as a rule contains the most ether. When the acetic ether is formed, a temperature sufficient to vaporize alcohol will carry the ether with it; and it is only by vaporizing the ether and some of the alcohol, and then passing them through chambers whose temperature is low enough to condense the spirit but not the ether, that they can be separated.

In support of this view, Muspratt, at page eight hundred and twenty-six, says:

"In modern chemistry ether is a term given to a class of very light, inflammable, and fragrant spirituous liquids, obtained by distilling in a retort a mixture of alcohol with almost any acid. Every one modifies the result in a certain degree, whence several varieties of the ether are produced. This compound is formed in nature in a small quantity, not uncombined, but in conjunction with acids, forming neutral ethers. The flavor of the pineapple, melon, and various other fruits depends on the presence of these."

Griffin, page ninety-seven, in describing acetic ether, says:

"It differs, also, from tartaric ether, in being volatile, so that when wine which contains it is distilled the acetic ether passes over with the alcohol into the distillate, where it can be detected by its odor, but cannot be measured as to its quantity."

In the manufacture of brandy there are four important liquids to be separated: acetic ether, which boils at a lower temperature than alcohol; alcohol, which boils at a temperature less than water; and water, boiling at a temperature less than fusel oil. It is therefore necessary, in order to separate the acetic ether from the alcohol, to distill in separate charges, because the ether being more volatile will pass over in advance of the alcohol, and may be separated by a proper distilling apparatus. But if continuous distillation is practiced, as with the Derosue and other stills, the ether always comes over in combination with the alcohol, without any means of separation. With fusel oil, the case is different; it boils at a higher temperature than alcohol, and may be separated by continuous distillation, but so long as these acrid and offensive ethers are brought over with the distillate a good brandy cannot be made from either sour wine or marc. We do not say that all ethers should be extracted from the brandy—only the offensive should be, and they are the first volatilized; nor should all the oils be, but fusel oil should be to a very great extent. The United States Dispensatory (Wood & Bache, page 801), says:

"There are volatile principles naturally existing in the grains, which accompany the liquid in all its changes and give the characteristic flavor to the resulting spirit. These can scarcely be considered as impurities; but there are others produced during the process of fermentation which serve seriously to contaminate the product. Among these is fusel oil or grain oil (amylic alcohol), which is offensive, both to the smell and taste, and of which it is very desirable that the spirit should be freed as far as possible."

In a recent issue of the Fermanagh *Farmers' Journal*, we find the following on the physiological effects of amylic alcohol or fusel oil:

"The effects of this alcohol, in its concentrated state, have been described by various toxicologists, but, diluted, its action has attracted little or no attention among British medical writers. In Scandinavia, however, where the low-class brandies that are the drink of the poorer portion of the population contain, or till recently contained, this poisonous principle in considerable quantity, the importance of this question has been recognized—and it is to an excellent paper by Professor Huss, of Stockholm, who has devoted great attention to the matter, that we are indebted for the substance of the following remarks: Liquors contaminated with fusel oil invariably cause more or less congestion of the lining membrane of the stomach, while the small intestines are almost invariably similarly affected. This condition of the mucous membrane leads to the secretion of gastric juice, at once abnormal in quantity and deleterious in quality, and thereby digestion becomes impeded, and phenomena, indicative of dyspepsia or indigestion in an aggravated form, appear. The gastric juice so altered is, however, still further unfitted for the fulfillment of its functions by the addition of successive doses of alcohol of this impure form, which has a well-marked influence in diminishing the power of the fluid to digest the food.

"As to the operation of this material on the liver and kidneys, alcohol in any form, where used to excess, causes a tendency to congestion in both these organs, and this tendency is markedly increased when amylic alcohol is mixed with other alcoholic beverages. In persons who habitually use drink so sophisticated, the constantly excited congestion of the organs in process of time induces change of structure, and consequently alteration in function, giving rise in some cases to engorgement and enlargement; in other cases, to various forms of degeneration, especially fatty degeneration, in which the normal structure becomes replaced by oily particles, rendering the organ as a whole soft and friable. Or, again: cirrhosis—as it is technically termed—of the liver appears, and this may or may not be accompanied by degeneration of the structure of the kidney, giving rise to one or other of the forms of Bright's disease. The heart and main blood vessels, too—organs which in the end are affected by over-alcoholic stimulation of any sort—are much more easily and constantly deranged when fusel oil is present in the stimulant used. That affection of the organs which is perhaps the more common is fatty degeneration—the heart appearing hypertrophied, while in reality the muscular fibers are atrophied, being in part replaced by oil globules, while in other cases fatty matter is deposited between the fibers. As a consequence of deficient contractile elements, the cavities become dilated, and the usual symptoms of this affection appear. Should the person survive this stage, a time comes when the fat begins to be absorbed, the walls of the heart become very much thinned, and in many cases the wasting of the muscular fibers is perfectly visible, even without the aid of the microscope, especially in those cases in which death—which is the inevitable result—is preceded by paralysis, dependent upon decay of the nervous power. Another form of degeneration which occasionally affects such persons is what is termed atheromatous degeneration. This form of degeneration especially affects the blood vessels of the brain, which are rendered so brittle as readily to give way to any sudden distensile power—a fact which accounts for many of the sudden deaths of habitual drunkards. But it is principally in the brain and nervous centers that the most distressing symptoms, and those least amenable to treatment, appear. Of these affections great varieties exist, and there is space here only to enumerate a few. Stated then, generally, the habitual use of such concoctions containing amylic alcohol or potato spirit, may produce effects: first, upon the motor or sensory power; second, upon the mental capacity of the individual; and, third, upon both of these combined. As regards the effects produced on that portion of the nervous system regulating the animal functions, and especially those of motion and sensation, these all commence by tremor and general unsteadiness of movement, appearing first in the hands and arms, then extending to the lower limbs, and ultimately to the muscles of the trunk of the body, which become affected so as to produce general trembling of the whole body, somewhat resembling some severe shaking palsy. This, then, being carried to a still greater extent, terminates in helpless paralysis. Those affections of the motor nerves may be quite independent of those of sensation, or may be conjoined with symptoms indicative of interference with the sensory system of nerves. These may, according to Professor Huss, be numbness, at first relieved by rubbing or change of position of the part affected, but afterwards becoming constant; or there may be a sense of something creeping between the flesh and the skin, which also is at first capable of relief by change of position and friction, but which also becomes constant; or again, sensation may become within the part either in part or in whole paralyzed, while also the special senses of taste, smell, hearing, and sight, may be variously affected, either becoming more or less paralyzed, or presenting evidences of perverted function. Thus the eye may deceive by conveying to the brain the sensation therein associated with that of certain forms or objects, but which have no real existence; or again, the person may hear sounds, which are entirely illusory, or may have sensations of taste, for which there is no cause; and the same may occur as regards the sense of smell. Such are some of the symptoms which these cases present, which it must be thoroughly understood are quite independent of another form of alcoholic poisoning, which is extremely common, but in which similar symptoms appear, depending on derangements of the functions of the brain in relation to the mind, rather than of the special nerves in relation to the body and the external world. There are, besides, spasmodic and convulsive affections, which may, under circumstances such as these, affect the body either in whole or in part; and it has been noticed that in many of the very exaggerated cases these have become epileptiform, while in some instances they appear to merge into epilepsy proper.

"Apart, then, from such affections of the bodily system, there are effects produced upon the mental functions usually associated with softening of the brain. The memory becomes defective, the reasoning powers and those of the will lose their tone, and the governing power of the animal machine is committed to the care of instinct and impulse. This stage is usually succeeded by imbecility and idiocy, although other forms of insanity are known to occur. Symptoms such as those just enumerated may appear either independently of other affections of the moving frame or may be associated with all degrees and varieties of these diseases; and not only does this indulgence in the excessive use of adulterated liquors harm the individual himself or herself, but, as has been noticed, also, although in a less degree, concerning other alcoholic beverages, when these are abused, there is induced in the offspring of such parents a powerful predisposition to become affected with almost every shade and variety of convulsive disorder, a remarkable tendency to weakness of intellect, to idiocy in childhood, and in maturer years to the development of various forms of insanity. Evidence of this nature, derived from an authority so great as that of Professor Huss, backed up as it is by many illustrative cases, ought, we think, to show in a very satisfactory manner how great the danger entailed by the use of stimulants adulterated by fusel oil, etc., is, over and above that entailed by a similar quantity of pure whisky, although the abuse of even that has been very conclusively demonstrated to produce effects of most detrimental character upon the human economy."

In concluding this report your committee would urge upon the association the necessity of furnishing to the public a perfectly pure brandy, as free from fusel oil as possible. We are just commencing this business; our State has lands almost worthless for any other purpose than grape culture, and by producing a pure article of wine and brandy we may cover our hills with vineyards, and in a short time equal France in the amount produced.

The report was received and placed on file.

DELEGATE TO THE VIENNA EXPOSITION.

Manlove moved that all those who received premiums for the exhibition of wine or brandy be requested to take diplomas instead of premiums, and place the premium money into a common fund, which will be used to pay the expenses of a competent man to go to Vienna and bring into notice California wines and brandies. He said that would have a beneficial effect in inducing many persons to come over and engage in the manufacture of these liquors.

Hill said he thought it would be appropriate to refer the resolution to the committee that had been appointed during the day, to consider the matter.

It was so referred.

AFTERNOON SESSION.

At half-past two o'clock the association reassembled and was called to order by the President.

THE VIENNA EXPOSITION.

J. R. Snyder, from the committee appointed to consider the matter of sending samples of wine and brandy to the Vienna Exposition and a delegate to see to it there, submitted the following report:

The committee to whom was referred the matter relative to the Vienna Fair, beg leave to report that they have had the matter under consideration, and recommend that Julius Dressel, of Sonoma, be appointed a Commissioner to said Fair to represent the California Vine Growers and Wine and Brandy Manufacturers' Association. As no appropriation has been made from any source to pay the expenses of said Commissioner, we recommend that subscriptions be taken from the vine growers of California to the extent of not over one thousand dollars for such purpose, and that each member of this association be assessed five dollars for such purpose, and that the Secretary be authorized to collect from such persons as are willing to assist in this enterprise such sums as they may feel disposed to give. That all vine growers and wine makers be requested to send samples of their best wines to the extent of —— bottles of each kind of wine and brandy of a pure character to the Secretary of the association.

Also, we recommend that the Governor be requested to indorse our Commissioner as the representative of the State Vine Growers' Association of California, that he may be recognized at Vienna as coming officially from the State Agricultural Society of California, through the vine growers. That the samples of wine and brandy sent to the Fair shall pass through the hands of a committee of vine growers appointed by this association, and they shall select the wines that are to go to the Vienna Fair. After the selection has been made, the wines shall be properly labeled and boxed, and placed in charge of the Commissioner. All wines shall be put in such bottles as the Committee on Selection may determine, and shall be properly labeled with the name of the wine, its age, and the maker's name. That the Secretary of the Vine Growers' Association be authorized to collect subscriptions outside of the association to make up the sum required for the use of the Commissioner named—Dressel. That the Secretary is authorized to have published in the papers of Sacramento and San Francisco, an appeal to the leading business men to assist in this movement to present to the people of Europe this branch of a productive interest of California.

We also recommend that this association take steps in reference to having the wine interest of California properly represented at the Centennial Celebration at Philadelphia in the year eighteen hundred and seventy-six, and that an appropriation be asked from the Legislature to cover the trifling expense relative to the same.

Respectfully,

J. R. SNYDER,
WM. McP. HILL,
W. S. MANLOVE.

Hill moved that the report be received and the committee discharged, and the motion prevailed.

Johnston moved that, instead of assessing each member five dollars, that they be requested to pay that amount. He doubted the authority of the association to assess the members.

After several other motions had been made and discussed, the report was adopted as submitted.

Strobel moved that a committee of five be appointed to select the wine for the Exposition. The motion prevailed, and the Chair appointed J. R. Snyder, Carl Strobel, George West, M. Keller, and Robert Chalmers.

A committee, consisting of George Johnston, B. N. Bugbey, and A. S. Edwards, was appointed to select the brandies. Dressel was made ex officio a member of the two committees.

On motion of Hill, a committee of three were appointed to wait on the Governor, appraise him of the action of the association, and see what he will do in the shape of giving credentials to the Commissioner. G. G. Blanchard, W. McP. Hill, and Leonard Goss were appointed on the committee.

On motion, it was decided that the number of bottles of each variety to be sent to the Secretary shall be not less than four.

Hill moved that the Secretary be instructed to open a correspondence, and take the necessary steps to properly exhibit the wine interest of California at the Centennial Anniversary at Philadelphia in eighteen hundred and seventy-six. The motion prevailed.

REPORT OF THE COMMITTEE ON CASKS.

George Johnston, from the Committee on Casks, submitted the following report:

MR. PRESIDENT AND MEMBERS OF THE ASSOCIATION: Your Committee on Casks beg leave to report that during the last year they have made diligent inquiry in regard to the best wood of which to make stock casks for wine. They find that redwood casks have been used for that purpose by a number of wine makers with complete success—many wine makers preferring them to oak for the following reasons: First—Casks of three thousand or four thousand gallons do not cost half as much as oak. Second—Bugs do not bore into the wood. Third—They are generally tighter than oak. The three thousand five hundred gallon cask, for which John Ochsner received the premium, is now full of wine at the Johnston Brandy and Wine Manufactory at Marysville. It is perfectly tight, although it lay on the railroad platform at Marysville for nearly three weeks before it was filled. We have seen a pipe of one hundred and fifty gallons made from Oregon cedar. This is a very strong, tough wood, well calculated for making stock casks of from one hundred to three hundred gallons. We think it would also do well for the manufacture of casks for shipping purposes, by inserting an oak bung stave. There has been a prejudice against the use of redwood for wine casks on account of the taste of the wood and the supposed difficulty in extracting it. This we believe to be groundless. We think there is less difficulty in cleansing a redwood than an oak cask, and we feel confident that a fair trial is all that is required to bring them into favor.

Major Snyder and others said that they had used redwood casks and found them a success.

Strobel said we should put California liquor into casks made of California wood, for the sake of giving a characteristic to our productions as well as on the ground of economy.

On motion of Hill the report was received and filed.

Johnston claimed that a steamed redwood cask was tighter and as tough as an oaken one. But small redwood casks cannot be used for shipping.

Snyder thought that if redwood casks were covered with oak hoops they could be used for shipping. He thought shipping casks could be made of redwood, capable of holding one hundred and fifty gallons, with perfect safety.

The committee were instructed to make an additional report on the present cost of casks to the wine makers of the State; how small a cask can be made of redwood; and at what cost they can be manufactured.

VIENNA EXPOSITION AGAIN.

It was moved that the Secretary be instructed to communicate with our Senators and Congressmen and ask them to try and get an appropriation of two thousand dollars for the use of the association to defray the expenses attending the sending of wines and brandies and a delegate to Vienna. The motion prevailed.

The Secretary read a subscription list of those who would give money to defray the expenses of the delegate, to which was appended the names of several of those present. One hundred dollars was subscribed.

On motion the President was requested to act in conjunction with the Secretary in trying to obtain the appropriation from the Federal Government.

CLASSIFICATION AND PAINTING GRAPES.

The Committee on Classification of Grapes reported that they had received from several artists samples of very fine oil paintings, and some very reasonable bids, and one sample of grapes in water color. But they had not come to any conclusion in the premises, not being satisfied as to the best manner of obtaining lithographs. They were in correspondence with George Baker, a lithographer of San Francisco, who had made a proposition to furnish lithographs without the intervention of paintings of any kind; and until further investigation the committee was not prepared to make any recommendations.

The whole matter was left in the hands of the committee, with discretion.

The association adopted the following rules and premium list:

RULES FOR THE FAIR OF EIGHTEEN HUNDRED AND SEVENTY-THREE.

RULE I.

Each exhibitor of brandy shall, at the time he enters his brandy for exhibition, furnish the Secretary, as far as practicable, with a full and truthful statement as to whether it is made from grape entire, from wine, or from pomace, and the variety or varieties of grapes used in either case; the character of the soil and subsoil, the altitude, as near as may be, of the locality where the grapes were grown; the kind of still used, and the mode of distillation, including the manner of applying the heat; whether rectified or flavored in any way, and if so, with what ingredient or ingredients, and how applied. No brandy less than proof shall receive any premium.

RULE II.

Each exhibitor of wine shall furnish the Secretary, as far as practicable, at the time of entering the same, with a full and truthful statement of the variety or varieties of grapes from which it is made; the character of the soil or subsoil, and altitude, as near as may be, and general aspect of the locality in which the grapes from which it was made were produced; the age of the vines; the distance apart at which they are planted, and the manner of cultivating and pruning the same; also, whether the vineyard was planted with cuttings or with rooted vines, and the number of grapes in tons, and wine in gallons, produced to the acre; also, whether the juice was fermented on the skins or not; and a full and detailed statement of the manner in which the grapes and wine have been treated from the time of picking the fruit to the time of placing the wine on exhibition, including the stage of ripeness at which the grapes were picked and crushed. He shall also exhibit, if practicable, a sample of the grapes grown on the same vine as those from which the wine was made.

RULE III.

No exhibitor of grapes, raisins, wines, or brandy, shall receive a premium for any one of these articles, of which he is not the producer or manufacturer; and no wine, except sparkling wines, containing any ingredient, except the pure product of the grape, shall receive any premium offered by the association. And the committees are especially instructed to reject all samples of wines or brandies they shall deem unworthy of commendation, as the association will encourage the production of no inferior articles.

RULE IV.

All wines and brandies shall be exhibited in quart champagne bottles, corked without sealing, and labeled with the full name of the article contained within. If dry white, dry red, sweet white, sweet red, or any other kind of wine, the label shall so state; and before being placed in the hands of the committee for testing, the bottles shall be so wrapped with paper or other material as to completely hide the label and prevent the possibility of identifying the ownership of the same, so as to avoid the effects of bias on the part of the committee in favor of locality or individuals.

RULE V.

After the regular committees have passed upon the brandies or wines, they shall seal up their decisions and place them in the hands of the Secretary, to be kept strictly private. The exhibitors of the brandies and the exhibitors of the wines shall then form themselves into committees, to be known as the Committees of Exhibitors, and the samples of the brandies, concealed as above, shall be submitted to the Committee on Brandy so constituted, and the samples of wine to the Wine Committee so constituted; and they shall in like manner make up their decisions, seal them, and hand them to the Secretary; but the award of the regular committees shall be final as to the premiums, and the decision of the Committees of Exhibitors shall only be considered as a test of judgment.

RULE VI.

All the committees shall classify all the samples of wine or brandies submitted to them in the order of their quality, and shall state in detail the reasons for their decisions.

RULE VII.

When all the reports of the committees on wines, brandies, grapes, and raisins have been written and placed in the hands of the Secretary, he shall call a meeting of the association at some convenient place. At this meeting shall be opened and read the reports of the committees, both regular and of the exhibitors, and the statements of exhibitors above required; and all questions raised by such reports and statements may be fully discussed under such rules as the association may adopt for the occasion.

RULE VIII.

Each exhibitor shall furnish for exhibition and testing, at least two bottles of each variety of brandy and wines exhibited, and at least one duplicate bottle of each variety, to be kept in store by the association to observe and note the effects that age will produce on the same.

RULE IX.

Each exhibitor of raisins shall file with the Secretary a statement of the soil, etc., as required by exhibitors of wine, and in addition shall set forth his mode of picking, as to degrees of ripeness, and his manner of drying and handling and packing the same.

RULE X.

Each exhibitor of grapes for a premium shall give all the names of each variety by which he knows them; and shall exhibit a section of the wood of the vine of each variety, containing at least one bunch of grapes and samples of the leaves, to enable the Committee on Classification to give to them the proper description and to obtain a photograph, true to nature, of the wood, berry, and leaf for illustration.

RULE XI.

The exhibition of the California Vine Growers' and Wine and Brandy Manufacturers' Association will be held at the same time and in the same building with the State Fair, but the whole management of the same will be under the control of the Board of Directors of the Association, subject to the rules governing the State Agricultural Society's Fair. All articles intended for exhibition at the Vine Growers' Fair, must be directed to I. N. Hoag, Secretary C. V. G. and W. and B. M. A., Sacramento, accompanied by letters explaining the same, and any directions necessary to avoid mistakes.

RULE XII.

All exhibitors who intend to become competitors for the premiums of the Association, must become members thereof, and must have their articles properly entered in the Secretary's books, and in their places in the Pavilion by 12 o'clock M., of Saturday, thirteenth of September.

The Committee to Classify Grapes are authorized to offer liberal premiums for paintings of fifty varieties of grapes.

Memberships, two dollars and twenty-five cents; to be had of the Secretary.

LIST OF PREMIUMS FOR EIGHTEEN HUNDRED AND SEVENTY-THREE.

ARTICLE.	Award.
Brandy.	
Best grape brandy, vintage 1872	$25
Best grape brandy, vintage 1871	$25
Best grape brandy, vintage 1870	$25
Best grape brandy, vintage 1869	$25
Best grape brandy, vintage 1868 or older	Diploma.
Dry Wines.	
Best white wine, vintage 1872	$25
Best white wine, vintage 1871	$25
Best white wine, vintage 1870	$25
Best white wine, vintage 1869	$25
Best white wine, vintage 1868 or older	Diploma.
Best red wine, vintage 1872	$25
Best red wine, vintage 1871	$25
Best red wine, vintage 1870	$25
Best red wine, vintage 1869	$25
Best red wine, vintage 1868 or older	Diploma.
Sweet Wines.	
Best white wine, vintage 1872	$25
Best white wine, vintage 1871	$25
Best white wine, vintage 1870	$25
Best white wine, vintage 1869	$25
Best white wine, vintage 1868 or older	Diploma.
Best red wine, vintage 1872	$25
Best red wine, vintage 1871	$25
Best red wine, vintage 1870	$25
Best red wine, vintage 1869	$25
Best red wine, vintage 1868 or older	Diploma.
Special Wines.	
Best California port wine, vintage 1872	$25
Best California port wine, vintage 1871	$25
Best California port wine, vintage 1870 or older	Diploma.
Best California sherry wine, vintage 1872	$25
Best California sherry wine, vintage 1871	$25
Best California sherry wine, vintage 1870 or older	Diploma.
Best California sparkling wine, vintage 1872	$25
Best California sparkling wine, vintage 1871	$25
Best California sparkling wine, vintage 1870 or older	Diploma.
Best California Angelica wine, vintage 1872	$25
Best California Angelica wine, vintage 1871	$25
Best California Angelica wine, vintage 1870 or older	Diploma.
Miscellaneous.	
Best samples of grape syrup, not less than one gallon	$10
Best sample of grape sugar, not less than five pounds	$10
Best twenty-five pounds of raisins	$25
Best still (working still, not model)	$25
Best grape crusher and separator	$25
Best and cheapest cask for shipping wine or brandy	$50

ARTICLE.	Award.
Grapes.	
Best twelve varieties of table grapes, not less than three bunches each	$25
Best six varieties of table grapes, not less than three bunches each	$20
Best three varieties of table grapes, not less than three bunches each	$15
Best two varieties of table grapes, not less than three bunches each	$10
Best one variety of table grapes, not less than three bunches.	$20
Best twelve varieties of wine grapes, not less than three bunches each	$25
Best six varieties of wine grapes, not less than three bunches each	$20
Best three varieties of wine grapes, not less than three bunches each	$15
Best two varieties of wine grapes, not less than three bunches each	$10
Best one variety of wine grapes, not less than three bunches.	$10
Best variety of raisin grapes	$10
Best and greatest variety of grapes, not less than three bunches each	$60
Second best and greatest variety of grapes, not less than three bunches each	$40

ADDRESS BY MAJOR J. R. SNYDER.

DELIVERED BEFORE THE VINE GROWERS' AND WINE AND BRANDY MANUFACTURERS' ASSOCIATION, AT SACRAMENTO, ON THE TWENTY-FIRST OF JANUARY, EIGHTEEN HUNDRED AND SEVENTY-THREE.

> " I lang hae thought, my youthful friend,
>   A something to hae sent you,
> Tho' it would serve nae ither end,
>   Than just a kind memento;
> But how the subject theme may gang,
>   Let time and chance determine—
> Perhaps it may turn out a sang,
>   Perhaps turn out a sermon."

The attacks that have recently been made against the production of wine in California deserve some notice from our association. The growth of the grape and the management of wine is fast becoming of commercial importance to California, and will be one of the chief sources of the productive interests of the country. Wine is one of the chief sources of wealth to France and other portions of Europe, and its production is not only a public benefit in a monetary point of view, but also in a moral and sanitary point of view.

Every practical man and every clear-sighted merchant must know that what benefits the public must benefit him; and to uphold any clique, party, or association whose operations are detrimental to the public interests, implies either a want of knowledge or violent prejudices. The improper use of wine, as well as that of many other things, should not lead to their utter condemnation or abandonment.

The vine is one of the earliest products of agriculture. We find, at an early period of time, there was great wickedness on the face of the earth; and it grieved the Lord that he had made man, and he repented, and he said that he would destroy man and beast, and every creeping thing, and the fowls of the air; for, said he, it repenteth me that I have made them. But Noah found grace in the eyes of the Lord. Noah was a just man and perfect in his generation, and Noah walked with God. Noah was ordered to make an ark, into which was put every living thing by pairs; and the flood came and covered the face of the earth, destroying every living thing on the face thereof. After the end of one hundred and fifty days the waters were abated and the ark rested on the mountains of Ararat. He sent forth a raven; the raven did not come back, at least we have no account of it, but he went to and fro until the waters were dried up. He sent forth a dove; she found no resting place for the soles of her feet, and came back. She was sent forth again, and came back with an olive leaf in her mouth. She was sent forth again, but did not return. Noah went forth from the ark, and God blessed him and his sons. And God had great confidence in Noah, and made a covenant with him on account of this great confidence.

Now, Noah began to be a husbandman, and he planted a vineyard; he made wine from this vineyard and used it, but not with discretion.

No other branch of agriculture is spoken of save the cultivation of the vine. This must have been the first vineyard on record. It is evident from what has been said on the subject of the flood, and of Noah, that the Lord took a special liking to Noah, and, above all other men on the face of the earth, he was selected to repeople the earth—that earth which had been so full of wickedness that the Lord was obliged to destroy the population by flood. Notwithstanding the high estimation in which Noah was held he got *drunk;* and he, too, above all other men, was the chosen one. A question here arises, whether it is good to get drunk. Some persons think that it is; sometimes some doctors think so; but not to get drunk and keep drunk; not to indulge in a continuation of the immoderate use of stimulating drink. Wine, and the use of it, dates back to the foundation of the present population of the earth, and has been used by all nations up to this day.

Well-informed persons know that good wines are beneficial to the palate and to the health, and do not carry disease into the stomach during the moment of social joy. They cheer and exhilarate, while they fascinate all but the coarsest palates, and those which have never been cultivated to a refined sense of their delicate bouquet, charming aroma, and insinuating flavor.

Persons whose education and cultivation in regard to such matters have been neglected we cannot accept as competent judges of the value of good wines, their use and abuse; and we feel sorry that their prejudices have led them so far astray as to cut them off from one of God's greatest blessings to man. No man of common, or even ordinary sense, or business capacity, would select a man to give him advice on a subject of which he knows nothing, or one wherein his prejudices had so completely befogged his intellect that he could not get within one hundred and eighty degrees of the truth. How much enjoyment such persons have lost could more easily be calculated than the parallax of Sirius.

Popular Science (monthly) No. 2, for June, page 240, in speaking of the question of stimulation, says:

> "The rationale of stimulation is indeed not so puzzling. Food builds up and maintains the vital activity of the whole animate creation in its working state, but that is not enough for man. He leads a life of high and complex feeling, subject to wide fluctuations, while his intellect furnishes him with the means of influencing his emotional states; he therefore seeks those agencies which act to arouse pleasurable emotions, and these are stimulants. Capable of appreciating the immediate pleasure, but incapable of realizing adequately the distant pain, the habit is formed and runs into abuse. What then is to be done? Here logic is soon at fault, for the headlong reformer, who fixes his attention upon some special phase of the evil, and would eradicate it root and branch, is soon found to be himself involved in something not very unlike what he so zealously condemns; he, too, is an object of reformatory solicitude. One thunders against the whole tribe of alcoholic stimulants, from ethereal wine to acrid whisky, and never touches, tastes, or handles them—the pipe will do for him. Another counterblasts tobacco—content with strong coffee. Another decries all these together—inspired by the stimulus of concentrated potions of tea. Still another ingests perhaps only vegetables and water, and fulminates from the pulpit or platform against all these gross material indulgences—yet is lifted into the seventh heaven of enjoyment by the stimulating incense of flattery and applause which comes from admiring auditors, and without which life would be 'flat, stale, and unprofitable.' Another gets from music, pictures, theaters, fashion, novels, newspapers, or travel, a quieter form of excitement, which, though often running into dissipation, is less harmful than ordinary narcotic stimulation.
>
> "How far the ball-room, the political campaign, or the religious revival may be the equivalent of a drinking spree, we will not pretend to say; but that they are all marked by a common character—stimulation of pleasurable feelings, carried to a pitch of excitement, which ends in reaction more or less exhausting—is not to be denied.
>
> "As regards relief from the mischief of over-stimulation—alcoholic or otherwise—we have no reformatory nostrum to propose, except that of wine, and when they are proposed we shall do well to remember that the evil does not exist alone; it is part of the general imperfection of our nature, and the social state which accompanies it.
>
> "Nor is it to be remedied alone. The evils that result from the craving for stimulants and the gratification of it by dangerous drugs will probably only be removed with the slow and general improvement of character and amelioration of social conditions.
>
> "As soon as people know better their own nature and the true conditions of its unfolding, and begin to regard the subject with a more sacred respect, in proportion, we will venture to say, to the growth of a scientific conscience, will man become a higher law to himself, and the grosser vices of conduct may be expected gradually to disappear."

Or, in other words, until the animal man becomes more spiritualized and refined, or until the moral and intellectual faculties predominate over the animal, or until the front head is sufficiently powerful to control the back head, need we expect to have any change in the wants and desires of both men and women.

The progress of man through the various grades of improvement from the mere animal has been slow, and has taken a vast period of time. It is useless to undertake to force man into any new channel, where he travels under restraint. Education alone can lead him. All the denunciatory resolutions which may be passed by any body of men only amount to so much chaff before a strong wind. If you wish to build an edifice, first prepare a good foundation, if you do not want the fabric to come tumbling about your ears.

This foundation for man is education, a knowledge of things, a knowledge of nature and her laws.

Temperance societies may have done some good. I will venture to say, however, that there is more intemperance in the world to-day than ever before. It does not, however, come from the use of wine or beer. It comes from the use of strong alcoholic drink—whisky, rum, gin, brandy—but principally whisky in our country. This is one of the products of the war. It is always found in a nation demoralized by war, and the Government has had much to do in bringing this state of affairs about. Whisky was furnished in large quantities to the officers and men of the army, and it is said that they all drank, and continue to drink to this day. And some of the very men who now denounce the use of wine or beer are the strongest supporters of a Government that fosters the production of whisky in immense quantities.

The French, before their war, were the most temperate people in the world, and largest producers of wine, but since the war with Prussia wine is not strong enough for them; and, moreover, the strong drink of almost all countries where it is produced in abundance is not produced from the grape, but from the beet and from grains.

The manufacture of brandy is on the decline in California. It requires so much cost to produce it from grapes that there is no profit in the business. Many people in Sonoma County have this year thrown away the material from whence the brandy is made. Sam. Brannan, of Calistoga, who manufactured the article extensively last year, has, I am told, not made a single gallon this year.

The opinion of preachers, as a *general thing*, outside of their particular vocation and on practical questions, is not reliable. A certain scientist has said that the clergy are divided into three sections—an immense body who are ignorant, and speak out; a small proportion who know, and are silent; a minute minority, who know and who speak according to their knowledge.

There are a great many people in all communities who are like drones in the hive; they produce nothing and are consumers; they live from the honest labor of other people, and, like all such, they in time become insolent. They invade your homes, devour your substance, and give nothing in return.

Professor Agassiz speaks thus:

> "And they would see at once that the study of nature was every day not only encroaching upon philosophy, but upon our very creeds. He saw the day when the thinking men would appeal to the evidences of nature to determine whether we ourselves are descendants from monkeys or lower animals, or whether we are the work of a beneficent Father. Indeed, it would no longer do for the coming generation to say, 'I will accept this or that doctrine;' because knowledge was pressing into our ears, and we could say, 'You may know it; therefore you must know it; and unless you are willing to learn it, you may grow up in ignorance and be the tool of a designing priesthood."

It would be well for the clergy to turn their attention to many other matters that they leave untouched. They have plenty of work before them of a good and hard kind, that will make the sweat come.

A man incarcerated in the Tombs at New York has been figuring in chalk on the walls of his cell. It reads thus:

> "In New York City, the spires of three hundred and forty-two churches, worth forty-one millions one hundred and twenty thousand dollars, point heavenwards. I am here for stealing a loaf of bread for my starving child."

There is plenty of work to do in other vineyards than among those of the grape growers.

My advice to those who are so deeply interested in the welfare of the human family is, to look into such matters. There is misery enough in San Francisco to look after, without going to New York to count the cost of spired churches, and the wants of the poor; and there is wealth in San Francisco, among the churches with spires, and work among the low dens of misery; there is suffering, and deep suffering; then there is despair, and abandoned human beings, who are almost willing to believe there is no God and no clergy.

Commence, I say, at the foundation, and educate your children above the point of drunkenness, and there will be nothing to fear from the wine. Educate them, as Agassiz says, so that they may be capable of thinking and acting for themselves, and they will not require so many teachers of false doctrines—doctrines that are crumbling away fast, and in a few years will be buried under the debris of the temples of error.

Man is beginning to think, just learning the great truth, as Agassiz says, that "laws govern all things," and commence to investigate and apply them so as to promote virtue and happiness. Nor can he retrograde, except temporarily. Science is unfolding the great secrets of nature, and bringing us nearer and nearer to our Creator, showing us the beauty and simplicity of all his laws.

It is our own ignorance that leads us to condemn and abuse those things which are, in themselves, his best gifts. The vine will flourish, and its juice will still continue to cheer the heart of he who knows how to use it, and not abuse it. All the revolutions, and all the condemnation of conventions and assemblages, will not stop it.

As has been said before, there is a violent upheaval of the social elements of man; and it may not be impossible that the sword will again have to be drawn to sever some gordian knots that cannot be untied. And so it will go. There are fixed principles at work that conventions are powerless to control; and those principles will gradually push themselves upwards to an outcropping, in spite of all the obstacles that may be put in the way. Feeble and vain man thinks himself the great moving power on the face of the earth. He is nothing but a weak tool of active and invisible influences.

The question of intemperance, as agitated, must embrace all kinds of intemperance, or the exertions of those who are advocating the doctrine will amount to nothing. The mere fact that a few branches have been lopped off the tree will not check its growth. If gentlemen are so anxious to benefit their kind, they have an herculean task before them—the reformation of the world—so long as man is one half animal, three eighths devil, and one eighth angel.

In regard to an entire restraint, apart from other considerations, we will say that we are in favor of the use of light wines. The experience of Europe is favorable to the temperance of those nations with whom wine is a daily beverage. Our own country promises most favorably for the cultivation of the vine; and we anticipate its success with hope and pleasure, as a temperance man, believing that this itself will be a powerful auxiliary aid in the suppression of the gross taste for coarse and strong drink.

We believe in freedom. The best government is that which governs least. And what is freedom? What is the freedom of the press, but the power to publish wicked and pernicious doctrines? or freedom of speech, but the power to speak them? What is religious freedom, but the power to follow a false worship? Freedom of locomotion, but the power to go to the wrong place? Freedom of occupation, but the power to choose the wrong trade? And yet the proposition remains true, that the right to do wrong in all these, and in as many other respects as possible, is the essential condition of all true development, real happiness, and healthful progress.

A State can be called free only while the power of the rulers is restrained, and their judgment controlled by certain well understood, constantly referred to, and inviolably kept principles, broad enough for all circumstances, and superior to all expediency—guaranteeing to the citizen that freedom which, coming from any other source, is accidental and pernicious, and unworthy the acceptance of an enlightened people.

For years New England has tried total abstinence. Fifty years ago they were a healthy and a robust people. A pure air—which long cultivation of the country had freed from miasma—pure water, plentiful and wholesome food, comfortable dwellings, warm clothing, the absence alike of the corruptions of wealth and the debasements of poverty, correct morals and cleanly habits, constituted conditions happy and salubrious beyond parallel in the whole scope of civilization. They then drank rum and cider. What is the result of abstinence from these? Sharp features, shrunken shanks, sallow complexions, sloping shoulders, curving spines, contracted chests, shriveled bellies, bad breaths; young men pale and wrinkled at twenty-five, and valetudinarians at thirty; young women whose bloom fades at seventeen, never to return, but with the fever-glow of consumption; mothers withering under the first burdens of maternity leaving children such as are the material and legitimate fruits of their own wretched condition—pitiable, blue-lipped, red-eyed, rose-eared, pallid, scrofulous, and rickety first fruits of total abstinence. Without energy to be gay, or vigor to be dissipated, even the few amusements of their puritan ancestors are forgotten, and they early fall into the sad, ascetic inanity which their preachers inculcate; a life whose secret lies less in their melancholy morality, than in their sour stomachs, and the general acidity of the fluids that fill the places of blood in their shrunken veins. Dyspepsia, neuralgia, and consumption are reveling on their vitals; but the great desideratum for which they pine is a specific that shall purify the blood. Quack medicines claiming this virtue beyond naming or enumeration, load the shelves of their village shops and swell the advertising columns of their newspapers. Those whom these spare a cloud of practitioners of regular and irregular medicine fall upon and smite hip and thigh. The race is running out and the grand experiment just begun.

But "are these things useful"—what do these words signify? Every pleasant thing is useful. Beef, oysters, mirth, music, dancing, fair sights, sweet scents, soft fabrics, melodious sounds, delicious food, affectionate companions, all are useful because they give us pleasure—a commodity rare and precious in every market. If the wine which the overdriven man of business takes with his late dinner imparts an agreeable exhilaration, it is useful.

If, furthermore, by banishing care and calculation, it fits him for the amusements of the evening, and so insures a night of quiet, fructifying sleep, such as never comes to those who go to bed with columns of figures, protested notes, and falling stocks, whistling through the head, and by this means his health is preserved, why, so much the better. Whether these last advantages flow from it or not, the wine is useful for the gladness it gives, and is as much a matter of thankfulness as dollars and dimes, pork and potatoes.

For every one to pursue happiness in his own way is legalized here since the Declaration of Independence was published; to steal it from our neighbors is not lawful. Those who find the pleasures of this world too ecstatic for them to bear are quite free to abstain from its enjoyment as much as they please, provided, always and forever, they also abstain in a teetotal manner from denying the same right to others.

To the wine again: what of the gluten, and tannin, acids, alkalies, and

oils, which constitutes seven eighths of all French, German, and American wines? What of their properties, singly and in combination? What of their qualifying powers over the alcohol that accompanies them, and the effects of their union with the constituents of our solid food and the fluids of the body? Surely the juices of the fruit, preserved in its soundness by a substance developed from its own elements, deserves a more decent attention than to be summarily damned under the collective term rum. Our California wines most resemble those of the Rhine country, and before law lays its iron fingers on the lips of appetite we demand that competent persons be sent to that country to note and report on the moral and physical effects of wine in the home of the vine. Until this is done we shall not cease continually to accuse the teetotalers of fearing lest such emissaries, like other grimfaced, pseudo philanthropists we wot of, who have gone there, should fall from their faith, and, like the Israelitish spies, return with more joyous and less acidulous aspect, bringing a bunch of grapes for a sample.

When cultivation shall have dispelled the noxious vapors of our new country, and modified the rigor and variableness of its climate, we may expect to see the craving for spirits give place to the temperate drinking of those mild wines almost indigenous to California, and which have never failed to prevail over the stronger and more dangerous drinks, in countries capable of producing them. When this is done, drunkenness will become a thing of small account.

But the springing vine and the teeming clusters will in time accomplish what nothing else can; and he who planted the first vine in California will be remembered as a useful worker in the "Lord's vineyard," when those who began an agitation which now seeks to outlaw the fruits of others' long and patient toil will be named only among the "workers of delusions."

It is ever the way with men who most abuse the greatest blessings Providence has bestowed on them. Nevertheless, there is folly and much sin in burying a talent given us for use. The monastics of ardent climes, where women and not wine are the greatest "letters and hinderers," timidly seek refuge in austere vows and thick cloister walls.

The modern vegetarian, beset with blandishments of sausage and roast goose, stuffed with sage, as timidly resorts to such safety as lies in bran bread and cold boiled squash, devoid of salt. And our hot-headed, cold-water folk, who insist on burying a talent which they fear to give an account for, nay, who cast the great virtue of temperance to the dogs and other beasts, are but a third class of monastics, only, unlike the Catholic monks, these insist on making us all take the same vows with themselves.

The circle of inclosure around all these cannot be broken down in one place without laying the whole bare and defenseless to the meddling of the bungling and the crushing of the oppression of the law maker.

The freedom of the wine press and cider press and the freedom of the printing press are one and the same. The instinct of self preservation and self defense it is which guards them all or guards none; all of them or none take their place in the schedule of the irrepressible rights of man, and all or none are by the organic law of every free commonwealth sacred from scrutiny, as they are also by nature of those higher and more abstract principles superior and anterior to all human institutions which lie in the nature and fitness of things.

Yet, if this right to drink stood by itself alone, and involved in its fall no other principle of civil liberty, we could gain nothing by saving all the crime and misery and consequent taxation attributable to intemperance, at the expense of this one item of human freedom.

It is well for the people to guard their liberties with a jealous eye; already have conventions been held in our country to take the first steps towards the union of Church and State. I allude to the movement to have religion recognized in the Constitution of the United States; or, as has been termed, to have God recognized in the Constitution. Just as though it was necessary that God needed the recognition of the miserable worms that crawl on the face of this earth.

And this is not all. Which or what religion shall be the State religion? For this movement tends that way. Here, under the broad folds of our flag, and the full protection of our Constitution, all men of all climes, all men of all religions, can worship their God with none to molest them or to make them afraid. And may that day never come when any one religious denomination may have the power to oppress and disturb another. The checks and balances which we now have for the protection of all religions are beautifully and harmoniously distributed—let them remain so; and withered be the hand that is raised to disturb this equilibrium of the masses in the United States.

CHOICE OF LANDS FOR VINEYARDS.

BY EKIN SMITH.

I purpose to confine myself to the consideration of vineyards for wine-making rather than for market grapes, since the value of grapes for the market is governed more by size and appearance than by inherent qualities; and the very circumstances which produce size and fine appearance are often detrimental to the wine.

For the market it is rather a question of convenient transportation, for almost any locality in the interior of California can be made to produce fine market grapes. Not so for wine. First-class localities are comparatively scarce, and the area limited. Without doubt, any vineyard can be improved by cultivation, but unless the physical aspect and chemical properties of the soil are favorable, a first-class wine cannot be produced. A soil rich in decomposed organic matter will often produce grapes of fine appearance, but the wine *will* have an earthy taste. This fact alone excludes almost all bottom lands from the list of good localities. Sands have not this objection, but are nearly destitute of mineral salts, and therefore cannot produce a high-flavored wine.

But the greatest of all evils is an undue quantity of potash, and this objection lies against nearly all lands not having sufficient drainage, and many hills whose bedrock is composed largely of feldspar. Common feldspar contains from twelve to fifteen per cent of potash, and enters into the composition of many of the rocks of our foothills. Granite, gneiss, and mica slate contain about forty per cent of feldspar, which decomposes on exposure and sets free the potash. We have a sad reminder of that decomposition in the dirty appearance already of some of the granite in the State Capitol. Where the hills are steep and drainage perfect the evil is not so great, as the potash passes off in a soluble condition. Potash is an element of fertility, and grapevines absorb it largely, thrive and produce abundantly with it in excess, but its effect upon the wine is pernicious. One of the prime essentials of good wine is tartar, and where potash is also present in solution, they readily combine and form a salt which is deposited on the sides of the casks. From this salt tartaric acid is made, instead of remaining in the wine, and we wait in vain for a fine flavor to be developed; it is neutralized by the potash. Lime is also an alkaloid, but having great affinity for carbon, is generally found as a carbonate; and while it is not desirable in excess to make a still wine, is indispensable to make a first-class champagne, from the large amount of carbonic acid which it affords.

Soils having a substratum of magnesian rocks are not open to these objections, for although magnesia is an alkaloid, it is not soluble in water, and not known to enter into the composition of plants; but it is less fertile, and vines do not bear so abundantly.

All lands having a subsoil of clay are objectionable; the roots will not penetrate it, and the vines are liable to suffer from drought, and generally containing too much potash, as the clay is decomposed feldspar.

I am aware that some very celebrated vineyards are underlaid by feldspathic rock. Johannisberg is on trap; but it is only on those parts of the vineyard where the drainage is most perfect that the first-class wine is produced.

I throw out these ideas to provoke, if not discussion, at least a consideration of the subject; for there appears to be a disposition on the part of the public to consider almost any land good for vineyards.

California, like all wine countries, will be found to have its choice localities, where celebrated wines will be produced. Hitherto, in the mineral regions, the planting has generally been around old mining camps—not from choice, but because the planter happened to have a domicile there; while thousands of localities, more convenient and in many respects preferable, are neglected.

TRANSACTIONS

OF THE

BAY DISTRICT HORTICULTURAL SOCIETY

OF

CALIFORNIA,

FOR THE YEAR 1872.

REPORT.

San Francisco, November 20th, 1872.

To the honorable the State Board of Agriculture of the State of California:

Gentlemen: In compliance with the requisitions of the law, appropriating sundry moneys to the various agricultural and horticultural societies of California, we, the Directors of the Bay District Horticultural Society of California, herewith present to your honorable body a report of the transactions of that society, consisting of the list of officers and members, the constitution and by-laws, proceedings, as far as they are of public interest, essays and lectures delivered at the meetings of the society, items of interest concerning the Horticultural Exhibition of eighteen hundred and seventy-two, and a statement of accounts.

The Bay District Horticultural Society of California was organized in October, eighteen hundred and seventy, for the purpose of promoting the interests of horticulture generally; and, although its progress has been slow, the society has steadily increased in strength and usefulness.

The members who have taken the most active interest in the society are almost exclusively residents of San Francisco and its immediate vicinity. This accounts for the fact that more attention has been paid at the meetings of the society to floriculture, arboriculture, and the beautifying of residences and public grounds, than to horticulture in its broader bearings; the above designated sections being less adapted to the raising of fruits and other horticultural products than the rural districts.

However, horticulturists in all parts of the State begin to appreciate the importance of our society; and there are evident indications that many more will join us, and that this society will represent not only the horticultural interests of the district, but also aid in promoting those of the State, in all the various details.

Our horticultural exhibitions, which have been arranged to take place semi-annually, will be accompanied by meetings of horticulturists from the different rural districts, for the purpose of discussion, and to devise measures for the better development of our horticultural interests, and of those industries which are connected with them.

The society, being as yet young and inexperienced, cannot be expected to have accomplished so much as would be desirable; but the will of its members is earnest, and their efforts have been largely stimulated by the generous appropriation from the State.

In presenting this report, we are aware of many imperfections. These, we hope, will be viewed with leniency by your honorable body.

Very respectfully,

H. N. BOLANDER,
C. STEPHENS,
F. A. MILLER,
WM. MEYER,
E. L. REIMER,
F. LUDEMANN,
CHAS. SCHUMANN,
Directors Bay District Horticultural Society of California.

LIST OF OFFICERS AND MEMBERS

OF THE

BAY DISTRICT HORTICULTURAL SOCIETY

OF CALIFORNIA.

President—H. N. Bolander.......................San Francisco.
Vice President—C. Stephens.......................San Francisco.
Secretary—F. A. Miller.......................San Francisco.
Treasurer—Wm. Meyer.......................San Francisco.

TRUSTEES.

H. N. Bolander,
C. Stephens,
F. A. Miller,
Wm. Meyer,
E. L. Reimer,
F. Ludemann,
Chas. Schumann.

REGULAR MEMBERS.

H. N. Bolander	San Francisco.
E. L. Reimer	San Francisco.
F. A. Hering	San Francisco.
F. Ludemann	San Francisco.
R. Michelson	San Francisco.
C. Schumann	San Francisco.
Wm. Meyer	San Francisco.
F. A. Miller	San Francisco.
J. Forrer	San Francisco.
C. H. Hoffman	San Francisco.
W. F. Norcross	San Francisco.
A. J. Saulman	San Francisco.
John Wieland	San Francisco.
A. Steiger	San José.
J. B. Scotchler	San Francisco.
H. Balzer	San Francisco.
T. B. Lewis	San Francisco.
J. H. Sievers	San Francisco.
P. J. Ford	San Lorenzo.
Warren B. Ewer	San Francisco.
E. Mayrisch	San Francisco.

Edgar Briggs	San Francisco.
Ludwig Doeltz	San Francisco.
Sevin Vincent	Brooklyn.
John Rock	San José.
William Robertson	San Francisco.
Wm. Dose	San Francisco.
R. D. Reed	Sonoma.
W. J. Adams	Menlo Park.
G. M. Miller	San Francisco.
E. Meyer	San Francisco.
Ed. Wolleb	San Francisco.
Th. McEvoy	San Francisco.
Eugene A. Upton	San Francisco.
J. M. Thompson	Napa.
Jacob Seitz	San Francisco.
Theo. Brown	San Francisco.
L. H. D. Lange	Red Bluffs.
—— Herrmann	San Francisco.
J. M. Asher	San Diego.
Richard Linke	San Francisco.
Wm. Meeks	San Lorenzo.
Geo. Boreham	Nicasio.
A. Thomas	Santa Rosa.
Hugo Horst	San Francisco.
F. Weisenborn	San Francisco.
Chas. Mohr	Vallejo.
Chas. Barnard	San Francisco.
R. B. Woodward	San Francisco.
C. Stephens	San Francisco.
Gustave Mahe	San Francisco.
E. J. Hooper	San Francisco.
S. Tonnar	San José.
F. Bibend	San Francisco.
A. L. Bancroft	San Francisco.
Julius Spenter	San Francisco.
W. B. West	Stockton.
J. Lempke	San Francisco.
A. Kellogg	San Francisco.

HONORARY MEMBERS.

Baron F. Von Mueller, Director of the Botanical Gardens at Melbourne	Australia.
H. T. Williams	New York.
Marshal P. Wilder	Dorchester, Mass.
Charles Downing	Newburgh, N. Y.
P. Barry	Rochester, N. Y.
M. Ellwanger	Rochester, N. Y.
Dr. C. C. Parry	Washington, D. C.
Hon. Horace Capron	Japan.
James Lick	San José.
W. H. Treen	Melbourne, Australia.
Col. Warren	San Francisco.

CONSTITUTION AND BY-LAWS.

CONSTITUTION.

ARTICLE I.

NAME.

This society is an incorporation known as the BAY DISTRICT HORTICULTURAL SOCIETY OF CALIFORNIA.

ARTICLE II.

CAPITAL STOCK.

Its capital stock is twenty thousand dollars, divided into one thousand shares of twenty-five dollars each.

ARTICLE III.

LOCATION.

Its place of business shall be in the City of San Francisco.

ARTICLE IV.

OBJECT.

It shall be the object of this society to collect and distribute information in regard to horticulture, hold Exhibitions, and award premiums for the best productions.

ARTICLE V.

MEMBERS.

The society shall consist of: First—Regular members, who, being either life or subscribing members, shall be entitled to all the privileges of the society; and, second—Honorary members, who shall have the same privileges as the regular members, but no vote in the transaction of business of the society.

ARTICLE VI.

OFFICERS.

The officers of the society shall be: First, President; second, Vice President; third, Secretary; fourth, Treasurer; fifth, Board of Trustees.

The President shall preside at the meetings of the society, preserve order, and in case of an equal division upon any question, shall give the casting vote.

The Vice President shall preside and perform the duties of the President, in the absence or disqualification of that officer.

The Secretary shall keep on record the proceedings of the society, collect all dues, and pay them over to the Treasurer at the regular meetings of the Board of Trustees, taking his receipt for the same.

The Treasurer shall take charge of all funds belonging to the society, and disburse the same by order of the Trustees. He shall give bonds, and make a financial report every three months: in March, June, September, and December.

ARTICLE VII.

MANAGEMENT.

The general management of the society shall be in the hands of a Board of Trustees, consisting of a President, Vice President, Secretary, Treasurer, and three other Trustees, who shall meet at least once in each month for the transaction of business, and shall report to the society at the regular meetings in June and December.

ARTICLE VIII.

MEETINGS.

The regular meetings of this society shall be held on the last Saturday of each month. Special meetings may be called by the President at the request of five members. Special meetings for the consideration of horticulture generally may be held at the time of the Exhibitions. The regular meeting of the society in December shall be the annual meeting, for the receiving of reports and the installation of officers.

ARTICLE IX.

CERTIFICATES OF STOCK.

Each member shall be entitled to one certificate of stock on his completing the payment of twenty-five dollars.

No stock shall be transferred on the books of this society, and no member shall be entitled to hold more than one certificate.

ARTICLE X.

AMENDMENTS.

This Constitution shall not be amended, unless by a two thirds vote of the members present, at a regular meeting, and notice of such amendment shall be given two months previously, by the Secretary, at a regular meeting, and by a like notice on the bulletin board in the room of the society.

BY-LAWS.

SECTION I.

MEMBERSHIP.

Any person who wishes to become a regular member of this society will be elected by ballot, after being proposed as a candidate at a former regular meeting. Three black balls will exclude the candidate. No person shall be deemed a member, and be entitled to act as such, until he shall have paid the sum of five dollars into the funds of the society.

Honorary members may be elected by the majority of those present at a regular meeting. No contributions shall be required of them.

The Secretary shall notify the candidates of their election, in writing.

SECTION II.

ELECTION OF OFFICERS.

The annual election of officers shall be held on the last Saturday of November, and the elected officers shall enter on their duties on the last Saturday of December following.

The candidates for offices shall be nominated on the last Saturday of October previous.

The election shall be by tickets of a majority of the members present.

In case of any vacancy, the same shall be filled by a new election, to be held at any regular meeting.

SECTION III.

QUORUM.

At any regular meeting, five members shall constitute a quorum for the transaction of business.

SECTION IV.

MONTHLY DUES.

Each subscribing member of this society shall pay into the funds of the society a monthly due of fifty cents, until he shall have paid the sum of twenty-five dollars, when he shall become a life member.

SECTION V.

ORDER OF BUSINESS.

1. Reading of the minutes of the previous meeting.
2. Reports of officers and committees.
3. Proposition of new candidates.
4. Election of members.
5. Unfinished business.
6. New business, and subjects pertaining to horticulture.

SECTION VI.

PENALTIES.

Any subscribing member who, for the space of six months, shall have neglected to pay his monthly dues, shall be notified by the Secretary, in writing; and unless payment of such dues shall be made by him at the next regular meeting, said member shall be considered expelled from the society.

If any member of the society shall disobey its laws, or do anything to dishonor the society, he may be expelled by the vote of two thirds of the members present. But no member shall be so expelled unless a written notice of the motion shall be served upon him twenty days before it is acted upon.

SECTION VII.

PROPERTY OF THE SOCIETY.

No member shall remove any of the property belonging to the society out of their rooms.

Donations to the society shall be entered in a book kept for that purpose by the Secretary.

SECTION VIII.

EXHIBITIONS.

The society may hold Exhibitions of fruits, flowers, plants, vegetables, and seeds, at such times and places as it may hereafter determine.

Members and their families only shall have free admission to all Exhibitions of the society.

SECTION IX.

NEGLECT OF DUTIES.

Officers of the society neglecting their duties without sufficient cause, may be suspended or removed by three fourths of the members present at a regular meeting.

SECTION X.

LIFE MEMBERS.

Any member can become a life member by completing the payment of twenty-five dollars into the funds of the society, and shall be free from assessments thereafter.

SECTION XI.

READING ROOM.

The reading room of the society shall be under the management of the Board of Trustees, and shall be free to all members, any one of whom may introduce a visitor, who shall inscribe his name in a book kept for that purpose, and may avail himself of the privileges of the room three times consecutively.

No book, nor magazine, etc., shall be removed from the library.

SECTION XII.

DISBURSEMENTS.

All bills against this society shall be considered by the Board of Trustees, and after being passed upon by them, signed by the President, and countersigned by the Secretary, the Treasurer shall pay the same out of the funds of the society.

The Board of Trustees shall not be authorized to incur any debt or aggregation of debts exceeding fifty dollars without a vote from the society at one of its regular meetings.

SECTION XIII.

DISCUSSION.

No member shall speak more than three times on one subject, except by special permission of the majority of the members present.

SECTION XIV.

AMENDMENT.

These by-laws shall not be amended unless by a vote of two thirds of the members present at a regular meeting, and notice of such amendment shall be given one month previous to its being acted upon.

SECRETARY'S REPORT.

To the officers and members of the Bay District Horticultural Society of California:

GENTLEMEN: For the second time it has become my duty to present the annual report of the proceedings and of the state of affairs of our society. In the performance of this task, I am encouraged by the fact that our society has been constantly gaining strength, and is already recognized by the public as an established institution, calculated to promote the interest of horticulture in general, and more particularly floriculture and arboriculture.

USES OF HORTICULTURAL SOCIETIES.

Frequently the question is asked, "What are the uses and benefits of horticultural societies?" With the same propriety it may be asked, what are the uses of art associations, scientific associations, academies, and mechanics' institutes? And yet no intelligent mind doubts the great importance of all these institutions.

A horticultural society is a necessary institution for California, where new products are continually presented, and new industries are established every year. Our climate differs from that of other countries, our soil is different, and our seasons form a very striking contrast with those of other localities of the same latitude. Within our own State, the climate varies to such an extent that we may raise with equal success the banana, the apple, the grape, cotton, ramie, tea, potatoes, and rice. And, again, our homes may be surrounded with trees, shrubs, and flowers from every country; while the pine and oak thrive admirably, the palm, the acacia, the pampas-grass, develop their flowers in the midst of our Winters.

While it is an acknowledged fact that California can produce all these, there appears to be a great lack of knowledge as to the proper treatment of those plants, trees, and seeds which have only recently been introduced, and as to the best practical method of making these products pay. To remedy this evil, a horticultural society is necessary, to obtain and disseminate the proper information, and to encourage, by all means at its disposal, the raising of such products as are likely to create new and permanent industries.

But the province of a horticultural society is not confined to the encouragement of such productions as will furnish our markets with fruits and vegetables, and supply our manufacturing establishments with raw material; one of its leading objects is undoubtedly to create taste and a love for adorning the surroundings of our homes, of our public grounds, and of our roads and highways. Improvements of this kind are undoubted indications of a happy progress and prosperity; and in this particular the people of California are in much need of encouragement, which cannot be better supplied than by our Horticultural Society.

That our society has succeeded in effecting some good in this direction there cannot be any doubt; but it is equally true that far more remains to be done, which is only possible by a united effort on the part of our practical men. The leading features of a horticultural society are its exhibitions of the products of the country. In the development of a new country, exhibitions of this kind are essential. A comparison of products is presented which stimulates the producer to excel his neighbor; to the consumer is demonstrated the difference between the old California Mission grape and the Black Hamburg; between the sunflower, and the rose, and the camelia; between the manufactured wines (so-called) and the pure juice of the grape. To visitors from abroad is given an opportunity to judge of the wealth and resources of the country, and encouragement to them and their friends to settle among us.

Thus we would demonstrate that a Horticultural Society is an important institution, and that with proper exertions it must be beneficial to the State.

THE SOCIETY'S LIBRARY AND READING-ROOM.

In order to furnish the members and friends of the society with information derived from all parts of the country, as well as from abroad, a reading room has been established, and at the present time over twenty-five horticultural, agricultural, and scientific periodical publications are filed for the use of those who seek information. Four of the journals are published in California, nineteen in other States of the Union, one in England, and one in Australia.

The library contains at this time about two hundred volumes, including very excellent works on botany, landscape gardening, and practical treatises on all the leading industries of the country. It is desirable that some additions be made to the library at an early period.

MEETINGS OF THE SOCIETY.

The regular monthly meetings have not been as well attended as would have been desirable, which is partly attributable to lack of spare time, and also to some indifference. The hard work of the society has rested upon a few members, and I hope most sincerely that in the future all the members will take a more lively interest in the proceedings, and lighten the work of the few, who have at a great sacrifice of time done the work for all. Thanks to the few faithful ones, who were always willing to coöperate, and to do more than their share of the onerous work.

FOREST CULTURE.

The society has used its best endeavors to promote and encourage forest culture, and has been instrumental in bringing the matter before the Legislature, resulting in the passage of a law for the encouragement of forest and timber tree culture, which, however, did not receive the signature of the Governor. The society is strongly in favor of some system of forest culture in this State, and will in due time coöperate with the State Board of Agriculture, if acceptable, in advocating some measure which will bring about the desired end.

THE EXHIBITION.

With the generous aid granted by the Legislature of California, the society has arranged to hold two exhibitions annually for two years. Without this aid it would have been impossible, as the society, being young, could not command the necessary funds.

The Fall Exhibition of eighteen hundred and seventy-two was a success, financially as well as otherwise; but the enormous expense of fitting up a suitable hall required considerable engineering on the part of the Directors, and the greatest care and economy will be necessary to keep it from financial embarrassment.

The most brilliant features of the exhibition were:

First—The display of variegated foliage plants, both hardy and tender; the improvements in this class of plants have been most wonderful within the last few years throughout the civilized world. The specimens exhibited were generally well grown, and were enthusiastically admired.

Second—Flowering plants, both hardy and tender, were also well represented; and although the season preceding the exhibition was very unfavorable to the development of flowers, the display was very creditable, and with the exception of roses, was superior to the exhibition of eighteen hundred and seventy-one.

Third—Plants indigenous to California were not so numerous as was anticipated; however, it is important that their cultivation has been encouraged by the society, as numerous varieties of trees, shrubs, and flowering plants, all growing wild within our State, well deserve extensive cultivation.

The display of ornamental and useful timber trees was very numerous and excellent. Not less than three hundred and fifty varieties of coniferous trees were placed on exhibition, including many of our natives. Of Australian evergreens, there were also about two hundred and fifty varieties represented; certainly, as far as our information serves us, the most extensive collection on record.

New and rare plants always form very important and interesting features in an exhibition of this kind, where many things present themselves which have hitherto been known to very few. The introduction of new plants of any kind, useful or ornamental, should be encouraged to the fullest extent; and I hope that our next exhibition will show superior and more numerous collections of this kind.

The exhibit of fruits was not so grand as we were entitled to expect on an occasion of this kind in the metropolis of the Pacific coast. Very few of our pomologists partook in the exhibition, yet the display made by the few friends of the society was really excellent, and much better than that of former years. Fruit growers, no doubt, will soon learn that it is to their advantage to make a good display of fruit, when the bulk of their product is expected to find a market. The time has passed when the people will purchase fruits without inquiring where they come from, what their good qualities are, etc., and certainly by receiving the different varieties of fruit placed side by side, they are enabled to judge which are the most desirable. In order to have the people understand that there is a difference between one variety and another, we must educate them to that knowledge by placing before them the different varieties.

The best exhibits of fruits were made from Sacramento, San José, Stockton, and Napa.

Some very good exhibits were made of California-grown seeds, of California cotton, California vines, oranges, lemons, coniferæ cones, and preserved flowers.

There was a general complaint toward the close of the exhibition that it had been kept open too long, i. e. from August the twenty-second to September fifteenth. There is no doubt that the complaints were well founded. A horticultural exhibition is almost entirely made up of perishable articles, and it is only at an immense sacrifice that a good appearance can be preserved. Flowers will fade away under the effects of gas and dust and an insufficiency of light and ventilation; fruits will decay and lose much in their appearance; plants and trees will suffer to an extent which, in many cases, results in total loss. We think a horticultural exhibition should be limited to nine days. Of course the result will be that the receipts at the door will be much less; but exhibitors will not suffer so much, and more of them will be found who are willing to contribute to an exhibition which is not calculated to bring a heavy loss of stock upon them.

I deem it proper to say a few words at this time in regard to the San Francisco Horticultural Hall Association, the connections of which with the Horticultural Society are not generally understood.

For some time past the members of the Horticultural Society have seen the necessity of procuring a suitable hall for their exhibitions. The means of the society being very limited, the proposition was only a practicable one if taken hold of by those individual members of the society who were both able and willing to obtain a hall, provided the society would coöperate as much as possible; and also provided that the profits accruing from such hall should be divided amongst the actual shareholders. A Horticultural Hall Association was consequently formed, independent of the Horticultural Society, consisting, however, of members of the society; a hall was then purchased and fitted up, the Horticultural Society taking stock of the Hall Association to the amount of one thousand four hundred and eighty dollars.

Both associations are carried on independent of each other; but the expense of fitting up the Hall for the Exhibition being very great, a special agreement was made that the Hall Association, for and in consideration of one thousand five hundred dollars, paid to the Horticultural Society, should be entitled to the net proceeds of the first two weeks of the Exhibition, which was in reality the best arrangement which the Horticultural Society could make.

With a gratified appreciation of the confidence which has always been shown to me by the members of the society, in my many active duties, I hope that the day will not be far distant when "THE BAY DISTRICT HORTICULTURAL SOCIETY" of California will be one of the permanent and foremost institutions of the Pacific coast, and by its strength and influence will make itself felt in the development of the horticultural resources of California.

STATEMENT OF THE RECEIPTS AND EXPENDITURES OF THE AUTUMN EXHIBITION OF 1872.

DR.	
To cash received for warrant from the State of California, for $2,000, less discount of 10 per cent	$1,800 00
To cash from Horticultural Hall Association, as per agreement, and in consideration of receipts at the door during the first two weeks of the Exhibition	1,500 00
To cash receipts at the door during third week of Exhibition	1,264 75
	$4,564 75
To balance*	$944 45

	CR.
By lumber and carpenter's work	$286 25
By labor	115 50
By cartage and express charges	24 00
By insurance	47 85
By Manager of Exhibition	200 00
By printing	52 50
By wire-work	61 00
By police	9 00
By muslin for decorating	51 80
By envelopes, stamps, etc	19 00
By loan of dishes	5 25
By watering pots	3 00
By incidentals	46 90
By rent of Hall for third week of Exhibition	480 00
By doorkeepers and ticket office	70 00
By gasfitter	12 50
By music (third week)	495 00
By advertising (third week)	69 75
By sundry expenses	37 00
By premiums paid, as per list	1,534 00
By balance	944 45
	$4,564 75

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* This balance, with the appropriation from the State for the year eighteen hundred and seventy-three, will be applied to paying the premiums which may be awarded at the Spring and Autumn Exhibitions of eighteen hundred and seventy-three, to which fund the society proposes to add such amount as the means at its disposal will permit.

GENERAL ACCOUNT OF RECEIPTS AND EXPENDITURES OF THE BAY DISTRICT HORTICULTURAL SOCIETY FOR 1872.

DR.

To balance in hands of Treasurer from 1871	$25 80
To receipts for the year 1872, as subscriptions from members	421 45
To balance transferred from Exhibition Fund	944 45
Total	$1,391 70
To balance on hand	$675 40

CR.

By furniture and fixtures	$58 25
By rent of room	123 00
By subscription to horticultural and agricultural papers	90 00
By printing	28 00
By books for library	97 25
By traveling expenses	134 00
By commission on the collection of monthly dues, etc	94 30
By incidentals	91 50
By balance	675 40
Total	$1,391 70

Respectfully,

F. A. MILLER,

Secretary Bay District Horticultural Society of California.

THE CONIFEROUS TREES OF CALIFORNIA.

BY PROFESSOR H. N. BOLANDER.

Commencing in the southern part of the State, we meet, in her littoral belt, a little north of San Diego, a small species of pine, known to botanists as *pinus torreyana*. I have, thus far, not been able to learn its vernacular name.

The trees are small, and few in number. They resemble most the so-called Digger pine (*P. Sabiniana*) of our interior valleys. The leaves are in fives, and pretty long.

The seeds are about as large as those of *P. Coulterii*. The locality mentioned is the only one known. It has not been tested long enough in our gardens to know what may be expected of it as an ornamental tree. In a practical point of view it is unimportant.

Going northward, and keeping close to the seacoast, we find at San Simeon Bay, at Monterey, and at a place a little south of Pescadero, the so-called Monterey pine (*P. insignis*). The latter named place is its most northern limit. It seems to occur only on the immediate coast, on bituminous slate. Monterey is the oldest seaport, and the oldest point where botanists began their labors in California. Already, toward the end of the last century, it was visited by Menzies, an English botanist. Our species in question, being variable in the form of its cones, and the form of cones being one of the chief characters relied upon in a botanical description, gave rise to quite a number of synonyms.

In Captain Beecher's work we find it figured under the name of *P. Sinclarii*. Later, it is again described by Loisleur, and called *P. Californica*. Don described it, even twice, calling it one time *P. radiata*, and another time *P. tuberculata*. The name *P. insignis*, given to our species by Douglas, who visited Monterey in eighteen hundred and thirty or eighteen hundred and thirty-two, is the one now generally used. The name cannot be considered as settled, for, according to the laws of nomenclature adopted by botanists, it must retain its first name, *P. Sinclarii*.

This species attains a height of eighty to one hundred and twenty-five feet, and a thickness of two to four feet. In old age, its shape is very irregular, and anything but beautiful. Its cones, three to five in a whorl, are persistent for many years. The leaves are in threes. The timber is of little value, when better can be had. In dry, protected places it is pretty durable; but exposed to the vicissitudes of climate, it perishes soon. The tree, when young, is undoubtedly beautiful. It is extensively found in our gardens, and is known to every one as the Monterey pine.

Mixed with the species just treated of we find another two-leaved one, *P. muricata*. The vernacular name, in the Southern portion of the State, is bishop pine; in the northern, pitch pine. It occurs near San Luis Obispo, at an altitude of three thousand feet; near the Mission La Purissima, where it forms a small grove; near Monterey, as just mentioned, sparingly; near Tomales Bay, scattered over hills, facing the ocean; near Point Arenas. Also, at the Albion River, extending northward to the Ten Mile River, Mendocino County. Its cones are in whorls of two to four, persistent for many years. Some trees, two and one half feet in diameter, had cones on the lower branches partially overgrown by the bark. In some trees we find a series of cones of twenty-five to thirty years. This species has not yet found its way into our gardens. When young it is beautiful, and apparently of quick growth. The old tree is irregular in outline, mostly weather-beaten and unsightly. It attains a height of fifty to eighty feet. Its wood is fit for fuel only.

At the Albion River, *P. muricata* is mixed with another two-leaved species of pine, *P. contorta, Dougl.*, *P. Bolanderi, Pall.* It attains a height of thirty to fifty feet. On the upper drier portions of the so-called plains of that region it bears cones when it is about five feet high and one or two inches thick. The cones, several in a whorl, are also persistent for many years. Its small size, and slender, upright branches; its short and densely set bright green leaves, render it desirable for ornamental purposes. It evidently requires a sandy soil, whether wet or dry; it grows in both as its natural haunts. In the vicinity of Fort Bragg, this species forms a perfect barrier and shelter against wind and drifting sand. Nature here hints at a remedy for us. This species, used with the Monterey pine and cypress, would protect our city from drifting sand and fix the sand and soil. The people in that section of country have no vernacular name for it. In any other point the tree is unimportant. It extends along the coast northward up to Alaska. On the Sierras, it occurs between three thousand to eleven thousand feet, descending, however, gradually to the north. This gradual descendence of all of our trees on the Sierras towards the north is readily explained; yes, it is self-evident. On the Sierras, opposite Visalia, our big trees set in at eight thousand feet altitude; the Mariposa Big Tree Grove is found to be six thousand five hundred, and the Calaveras four thousand seven hundred feet above the level of the ocean. On the Sierras, *P. contorta*, or twisted pine, grows on the banks of streams, on wet and moist flats, and in the higher portion of the mountains on moraines. Here it attains a height of one hundred and fifty to two hundred feet, and a thickness of three to four feet. Its outline is strictly cylindrical. Its wood is, owing to the frequent storms on the mountains, twisted, and therefore hard to split. It is principally used for building log houses and for railway ties. The vernacular name applied is tamarack. The application undoubtedly arose from the resemblance in form and habitat this species presents with our Eastern larch (*Larix Americana, tamarack, hackmatack*), growing chiefly, if not exclusively, in swamps. The identity of the coast and mountain forms is not altogether safely established.

Receding from the coast toward the east, we meet, on dry hillsides, a small tree generally known as *P. tuberculata*. It attains a height of twenty to forty feet, and a thickness of ten to twenty inches. Its outline is conical. The leaves are in threes, and the cones persistent. In gardens it does well, and, as an ornamental tree, is preferable to the Monterey pine. I have not been able to learn its vernacular name. Being small and unsightly in its natural haunts, farmers never made any use of it, and therefore never gave it any vernacular name. It occurs on the Coast Mountains on the road to Santa Cruz, on the Oakland hills, on the mountains around Ukiah, on the Red Mountain, Humboldt

County; also, near Forest Hill, at Cape Horn (C. P. R. R.), and further up near Alta, in the dry slopes of the cañon of the American River. In most cases this small tree forms a small grove by itself. After the trees have attained a height of twenty to forty feet, they die and decay.

Continuing our march eastward, we next meet, although sparingly at first, our well-known yellow pine (*P. ponderosa*). This species attains a height of one hundred and fifty to two hundred and fifty feet. Its form is cylindrical in outline. The branches are short and generally deflexed. The leaves are in threes, and cones deciduous, falling every Winter to the ground, after they have opened (about the first of September) their scales to allow the seeds to be spread by the winds. In gardens it cannot be called an object of great beauty. But on the higher mountains, where it develops its full colossal growth, it is certainly a grand object to behold, and I can well see why Douglas called it *ponderosa*, the mighty. Generally speaking, its timber is rather inferior, being too coarsely grained, and therefore subject to early decay. It must be mentioned, however, that there is a considerable difference in the quality of the wood in different localities; yes, even in trees standing side by side. The timber from Truckee, so-called Truckee pine, belongs entirely to this species. The species in question is one of the most widely distributed trees of the western coast of North America. It grows on all higher and drier points of the Coast Ranges, and it descends even into their dry gravelly valleys, as is the case a little north of Ukiah, Mendocino County. It occurs on the Sierras, from one thousand five hundred to nine thousand feet, in great abundance. In fact, it is the principal component of that mighty belt of timber, extending from south to north, along the western slope of the Sierras, between two thousand to seven thousand feet—a belt of timber whose equal cannot anywhere else be found. It extends from the Colorado north throughout the Rocky Mountains, and occurs also in the higher mountain ranges of the Great Basin. Its northern limit is unknown. This immense diffusion over so large a territory, exhibiting so many different expositions and climatic differences, must naturally cause a great variation in form and size of the tree, and in the quality of its timber. Its very botanical history proves this assertion; for there are few trees that have more synonyms than the one in question. Besides the name above given, there are the following synonyms: *P. Engelmanni*, *P. brachyptera*, *P. Benthanii*, *P. deflexa*, and *P. Jeffreyi*.

The cones of trees in a dense forest are usually small, while those of isolated trees, standing in alpine meadows or on bare rocky slopes of mountains, or on wide sandy plains (Mono Lake) are from four to six times larger. This larger size of the cone is perhaps due to the intense reaction of the atmosphere, caused by bare rocks, wet meadows, and dry sand. Considering the quick radiation of heat in such localities toward evening and shortly after sunset, which cools the air and causes a heavy dewfall, we may be able to understand this phenomenon.

Ascending the highest points of the Coast Ranges, we meet the well-known sugar pine (*P. Lambertiana*). But the sugar pine of the Coast Ranges is not that colossal structure of the higher or rather middle Sierras. Its beauty, size, and length of cones are inferior. This tree yields an excellent timber, and attains a height of one hundred and fifty to two hundred feet; the outline is cylindrical, the branches are short, dense, and much divided into spray. A characteristic exception is made by the topmost branches, which spread in a loose irregular manner, almost horizontally. These are the cone-bearing branches, which attract the attention of everybody by their clusters of pendulant cones, fifteen to eighteen inches long. The cones open about September to emit their seeds, and fall then themselves during Winter to the ground. This noble tree has its leaves in fives. They are comparatively short, and of a glaucous-green color. It ranges through the entire length of the Sierras, north to the Columbia River, between four thousand to ten thousand feet. I have not yet observed it in any of our gardens. The resinous matter, exuding from burnt spots of the trunk, hardens into a whitish mass, sweet as sugar.

Descending into the more easterly valleys of the Coast Ranges, we meet a very peculiar pine, the Digger pine (*P. sabiniana*). This species attains the height of forty to sixty feet, and a thickness of two to three feet. Its outline is irregular; the trunk is generally low. Its branches are characterized by a few main leaders, and by the paucity of their spray. The foliage is a light and quite glaucous-green. The leaves are in threes, and the cones persistent, although not to the extent of some other species. The seed is the largest of all our pines. The testa of its seed is very hard and bony. The species occurs in the driest portions of the valleys and hillsides, even up to four thousand feet of the Sierras. It forms very seldom small groves. On account of its irregular form, it is not a desirable tree for gardens. Its wood is useless, except for fuel.

In similar localities, we find growing with the Digger pine, although less frequently, another pine, *P. Coulterii*. This species attains the height of thirty to fifty feet, and a thickness of two to three feet. It has a broad oval outline. The branches and branchlets are thick and clumsy, and few in number. The leaves are very long, bright-green, and in threes. The cone is the largest produced by our pines. It occurs at Pass Tejon, on the Santa Lucia Mountains, and Mount Diablo. In our gardens it does well.

Of the pines already described, the following also occur on the Sierras: *P. Sabiniana*, in the foothills, from three hundred to four thousand feet altitude; *P. ponderosa* (yellow pine), from one thousand five hundred to nine thousand feet; *P. tuberculata*, from two thousand to three thousand feet; *P. Lambertiana* (sugar pine), from four thousand to nine thousand feet; and *P. contorta*, from four thousand five hundred to eleven thousand feet.

I shall now proceed to describe those which have not been detected, thus far, growing on any of the coast ranges:

Pinus monticola (the little sugar pine).—This species attains a height of nearly two hundred feet, and a thickness of two to four feet. Its outline is cylindrical. The branches are short, flexile, and densely set. A characteristic exception is made by the terminal or topmost branches, which resemble greatly, in irregularity, the cone-bearing branches of the sugar pine, and which bear the pendulent cones from two to four in cluster. The cones, while closed, are of a narrow cylindrical form, from six to eight inches long, about one and a half or two inches in diameter. They are generally sprinkled with numerous patches of white resin. In September they open their scales widely to emit their seeds, and then fall during the Winter to the ground. The leaves are rather short, much like those of the sugar pine, and five in a cluster. The bark is quite different from that of the sugar pine; it is of a grayish-white color. This species is said to yield excellent timber, even better than that of the noble sugar pine. But the fact that it occurs only in the highest inaccessible mountain recesses, and that it is rather scattered in its manner of growth, reduces its usefulness to those functions only which trees generally perform in nature. In Mariposa County it sets in at about seven thousand five hundred feet, and rises to ten thousand feet. On the Mono trail, east of Little Yosemite Valley, it associates largely with *Picea amabilis*, forming an extensive grove. The finest specimens of this remarkable tree are perhaps seen near Sonora Pass; nowhere have I seen this species more beautiful and more accessible. Trees belonging to this species, seen on the hills and mountains adjacent to the Pacific Railroad, from Cisco to the summit, are but poor representatives, and give no idea of its beauty and size. Its distribution over the western mountains is not fully known. If I remember rightly, it has been seen as far north as Mount Rainier. Its southern limit cannot be even approximately given. It bears great resemblance to the Eastern white pine (*P. strobus*). In our gardens it has not yet made its appearance.

Pinus Flexilis (Mountain White Pine).—This species occupies the subalpine belts of the Rocky Mountains and the Sierras. It differs very much in size. At ten thousand feet altitude, it is a tree of one hundred and thirty feet high, and is from two to three feet in diameter; but on the high exposed crests of the Sierras and Mount Shasta, it is reduced to a mere straggling shrub, creeping on the ground. The cones, in consequence, vary considerably in size. Where the tree has obtained a stately size, as is the case on the mountains, of an elevation of ten thousand feet, a little east of Little Yosemite Valley, its cone measures from four to five inches; but when it is reduced to a mere shrub, they are scarcely from one to two inches long. It is a fine tree, with tapering trunk and conical outline, branching almost from the base; the lower branches are horizontal, the upper ones ascending. The wood is white and soft; the annual rings from one eighth to one half line, on an average one fourth line wide. The leaves, five in a sheath, are crowded toward the end of the very flexible branches, persistent from five to six years, usually one and a half to two and a half, very rarely one or three, inches long. The cones are sub-cylindric, tapering to the end, four to five inches long, and two inches in the largest diameter, resting on short peduncles. The scales are wide and squarrose—the lowest, sterile ones recurved; the fertile ones with deep impressions for the reception of the seeds, both on the upper (inner) side and on the back. The wing is minute, reduced to a persistent keel on the upper end and outer edge of the seed. The embryo has eight, or rarely nine, cotyledons. In our gardens it has not yet made its appearance. It is possible that it would do well in gardens, exposed to our cold Summer breezes. In the Rocky Mountains it occurs from New Mexico to the forty-ninth parallel, never forming entire forests. There it associates with *P. contorta* and *P. aristata Englm.* On the high crests of the Sierras it is found growing with *P. contorta* and *Abies Pattoniana*. The species described under the name *P. albicaulis, Englm.*, and *P. cembroides, Newb.*, is our *P. flexilis*, just now discussed. It was already made known fifty years ago.

Pinus Aristata, Englm.—The pine known under this name has not yet been introduced into gardens. In fact, it is but very little known, though widely distributed over our highest mountains. It is a small or middle sized tree, with a dense and crowded foliage. The leaflets are about from one inch to one and a half long, five in a sheath, and for many years persistent; the cones are from two to three inches long, tapering abruptly from a broad base. It was first discovered on alpine heights between nine thousand two hundred and twelve thousand feet, on Pike's Peak, and on the high mountains of the snowy range, by Dr. C. C. Parry, in eighteen hundred and sixty-one, who gives the following description: "On sheltered slopes, a tree forty to fifty feet high, and one to two feet in diameter, it becomes a straggling bush, prostrate and almost creeping, on the bleak summits of the high ridges. The bark is thin and scaly, even in older trees not more than three to four lines thick, of a light grayish brown color; that of younger branches smooth, with many large vesicles, containing a clear fluid balsam, which remains between the layers of the old bark. Wood white, tough, not very resinous, of extremely slow growth, so that a small, smooth-barked stem of thirteen lines diameter exhibited about fifty annual rings, all between one sixth and one sixtieth of a line wide. Branches spreading, very often many of them twisted, stunted, or dead; the larger branches of the stem itself frequently covered with young branches or shoots, which seem to keep life in the old trunk. Leaves crowded from the axils of ovate, acuminate, brittle, at first light brown scales, which, persisting longer than the leaves themselves, cover the branches with their rough, blackish remains; leaves light green on both sides, without white dots, mostly with numerous exudations of white resin, usually curved upward, entire on edges and keel, abruptly acutish, stouter in fruit bearing, more slender in such trees as produce principally male flowers, in very robust specimens one and one fourth and rarely one and a half, usually about one inch, long. Cones oval, obtuse, two and one fourth to two and a half inches long, about half as much in diameter, often covered with resin, as if varnished. Seed nearly three lines long, with the obovate wing six to seven lines long; embryo in all the seeds examined, with seven short cotyledons."

Professor William H. Brewer, of the California State Geological Survey, found this interesting specimen on the highest parts of the Sierras opposite Visalia. Professor Gabb collected it on the White Mountains, south of Mono Lake.

Pinus Monophylla, Torr. (*P. Fremontiana, Endl.*)—This odd species inhabits the eastern slopes and hillsides of the Sierras. It belongs, in fact, to the vegetation of the Great Basin. It attains a height of from twenty to thirty-five feet, and a thickness of two to three feet. Its outline is oval, resembling very much that of our common live oak (*Qu. agrifolia*), in the vicinity of the Bay of San Francisco. It is of a glaucous color, quite in harmony with the color of the dry hillsides and the drab-colored vegetation of the sandy, undulating plains of those regions. Forming groves on the hillsides, and scattering along the slopes of ravines, it affects the landscape in a similar manner to our live oak. Its wood is highly prized as fuel by the settlers, who consider it equally as good as hickory. It is evidently of a slow and stunted growth, with a light, glaucous, and airy foliage. There is generally but one leaf in a sheath, but sometimes two. What appears to be one round, needle-shaped leaf, seems to consist of two leaves agglutinated, for in a dry state they become actually separated into two. All parts of the tree exhale an offensive odor, and are quite resinous. The cones are of a light drab color, almost top-shaped, two to three inches long, and contain numerous large wingless seeds, eagerly collected by the Indians for food. Its distribution is quite unsettled. It appears, however, that it extends south from Mono Lake, on the eastern slope of the Sierras. Differing, as it does, in size and form, several varieties have been described, and even considered as distinct species (*P. edulis*). I have seen but one specimen in our gardens, which obtained in five years the remarkable growth of fourteen inches. It is not likely that it will be looked upon as anything more than a curiosity.

Concluding my remarks on the thirteen species of pines growing in this State, allow me to enumerate them once more in the order we meet with them from the coast to the great valley of the interior: *Pinus insignis*, *muricata*, *contorta*, and *Torreyana*, on the immediate coast; next, *Pinus ponderosa*, *tuberculata*, and *Lambertiana*, on the highest portion of the coast ranges; and, finally, *Pinus Coulteri* and *Sabiniana*, on their eastern slopes, bordering Sacramento Valley. Crossing this valley and ascending the Sierras, we meet the same pines, except four, in the same order, but inversely, namely: *Pinus Sabiniana*, *ponderosa*, *tuberculata*, *Lambertiana*, and *contorta*. Adding now the rest, not occurring on the coast ranges, we have *P. monticola*, *flexilis*, *aristata* to the highest crests, and *P. monophylla* on the eastern foothills, bordering the Great Basin. Or, if we take the Sacramento Valley as our stand, looking west and east, we have the following arrangement:

Coast Range.	Sierras.	Coast Range.	Sierras.
P. Sabiniana	P. Sabiniana	P. Torreyana	Wanting
P. Coulteri	Wanting	P. contorta	P. contorta
P. ponderosa	P. ponderosa	Wanting	P. monticola
P. tuberculata	P. tuberculata	Wanting	P. flexilis
P. Lambertiana	P. Lambertiana	Wanting	P. aristata
P. insignis	Wanting	Wanting	P. monophylla
P muricata	Wanting		

FIRS (*Piceas*).—Of these, we have four species growing on the Pacific coast:

First—*Picea grandis*, very generally distributed over California and the Rocky Mountains. It grows nearest to the ocean and in the gulches of the Sierra Nevadas, at from two thousand to seven thousand feet altitude. It is again found on the eastern slope of the Sierras, but in limited numbers. The tree is cylindrical in form, its foliage dark green above and silvery glaucous beneath. The cones are five inches in length, and rather narrow. It grows from two hundred to two hundred and fifty feet in height. The wood is inferior, and it is not cultivated here.

Second—*Picea amabilis* grows in the Sierra Nevadas, seven thousand feet above the level of the sea. The cones are large, and covered with a woolly-like substance. It is a tree of great beauty, and should be extensively cultivated. Its timber is valuable. The tree has been neglected by our nurserymen. The seed of the *Picea amabilis* is generally destroyed by insects. Apparently good and healthy seeds have been sent to England and New Zealand, but on their arrival they were found alive with insects. The best way of introducing this fir into cultivation would be to obtain young plants from three to four inches in height, which would transplant readily. These can be found in very large quantities near the summit of the Sierras. If carefully packed there, these might be conveyed with safety to a great distance.

Third—*Picea bracteata* is confined to a small locality in San Luis Obispo and Monterey Counties. Almost all of the trees have been cut down for the seeds. This tree is one of the most beautiful of conifers. It is slender, and the branches are well divided. The cones are four inches in length and two inches in diameter. Bracts are developed from between the scales of from one to two inches in length, and are reflexed. The seed has been sold as high as seventy-five dollars per pound. It is a rather dangerous enterprise to obtain the seed, as the country is infested by grizzly bears and overrun by the lawless greasers. There are now some cone-bearing trees of the *Picea bracteata* in England.

Fourth—*Picea nobilis*.—This tree is found from Mount Shasta to the Columbia River; the bracts extending from beneath the scales are three parted. The tree was first discovered by Douglass and sent to England, where it is also now cone-bearing. This tree is not cultivated here.

The cones of the *Piceas* do not drop; they open and discharge their seeds with the scales, leaving the spindle on the tree for several years. The *Piceas* have their leaves single on the sides of the branches, while the leaves of the *Abies*, which are also single, grow all around the stem.

SPRUCE FIRS (*Abies*).—Of these we have also four varieties growing in California.

First—*Abies Douglasii*, which is generally associated with the *Pinus ponderosa* in the gulches and on the banks of rivers and creeks in the Sierras; on the Coast Range it is generally most plentiful on the outskirts of thick forests of redwood. There is nothing more beautiful than a group of the California chestnut oak and the *Abies Douglasii* when growing together. This variety is also found rather plentifully in the Rocky Mountains. Trees have been seen of thirteen feet in circumference. The bark is of a grayish color, the branches drooping. The tree is very picturesque; the timber is valuable for lumber; the seeds ripen early in September. Marin County, and Belmont, San Mateo County, furnish excellent seed. This tree is cultivated rather extensively in California.

Second—*Abies Menziesii* is found all the way from Mendocino to Humboldt Bay and Alaska. The foliage is of a bluish-green; the trunk is from six to ten feet in diameter, and the bark smooth and black; the timber is used for ship-knees, and is, therefore, of a tough nature. The *Abies Menziesii* is also found in the Rocky Mountains, but not in the Sierras; it is sometimes called the black spruce (*Abies nigra*).

Third—*Abies Mertensiana*.—This is not the *Abies Canadensis*, or hemlock spruce of the East, which is of a grayish color, while the *Mertensiana* is of a cinnamon shade. This is one of the most beautiful trees for lawns and gardens; its branches are slender and graceful, and it deserves extensive cultivation.

Fourth—*Abies Pattoniana* (*Pattonii*).—This is recorded by the railroad survey as *A. Williamsonii*. It grows on the Sierras of California and Oregon, at a level of not less than eight thousand feet; the trunk is from six to eight feet in diameter, and it grows two hundred and fifty feet in height; the tree is conical, and the branches drooping. This is also known as *A. Hookeriana*. Cone-bearing specimens are growing in England under the latter name. It is difficult to obtain seeds in good condition, and the best mode of propagating would doubtless be to procure the young plants, which can be obtained in large quantities in the Sierras.

We come now to the *Libocedrus decurrens*, which is doubtless a different tree from the *Thuja gigantea*. It has a rough bark, and the foliage is spiny; the cones are like a peanut, with two wings, bearing two seeds in each wing; it seldom attains the height of one hundred feet; the trunk is thick below, and rapidly decreases in size. This tree is found to grow exclusively on very dry hillsides, in volcanic soil. The seeds are shed about the first of September.

Thuja gigantea, which is also called *Thuja Craigiana*, has a smooth bark, and the foliage is also smooth. The cones are scaly; it grows from one hundred and fifty to two hundred feet in height, and is rather slender. The *Thuja gigantea* is not found in very dry soil; it is covered with a dense foliage, and is of a graceful habit.

Next in order are the *Sequoias*, of which there are two growing in California.

First—*Sequoia gigantea* (*Wellingtonia gigantea—Washingtonia gigantea*), called, also, the Big Trees of Calaveras. It was formerly believed that there were only a few of the *Sequoia gigantea* growing in this State, but it has been found in large quantities, both small and large trees, in the Sierras, at from four thousand five hundred feet to eight thousand feet above the level of the sea. It has been found in a silicified state, in large quantities, both in the Baltic Sea, in Switzerland, in Greenland, and in England, where at one time it must have covered the ground. The leaves are sharp-pointed and scattered around the branches; the foliage is of a light green; the cones are ovate and from two to three inches in length, with prickled scales.

Second—*Sequoia sempervirens* (redwood).—This peculiar tree is found from San Luis Obispo up to Mendocino, close to the ocean. North of Mendocino it makes room for the *Abies Douglasii* and the chestnut oak. It occurs once more higher north, on this side of the line of Oregon, where it is found in large quantities. A few have also been found in Oregon. It grows in foggy regions and in sandstone formations. There is nothing more grand than to contemplate the ocean of redwood trees when the fogs roll in over the woods. The amount of rain is larger wherever redwood forests are found; and it is a fact that moist and springy lands, known to be such while the redwoods covered the ground, have dried up and shown no signs of water after the redwood trees have been removed. An example of this is furnished in the hills at the back of Oakland, where redwoods covered certain localities at one time. This tree grows to the height of three hundred feet, and is found at from ten to fifteen feet in diameter. The timber is valuable.

The redwood was found in England, and described as the *Sequioa Langsdorfii*.

Redwood forests are not destroyed by fire, which may burn up all the leaves and branches, but the tree will send forth new shoots from its charred trunk and limbs. Trees which have been cut down and allowed to remain on the ground, have formed, after a few years, new growths of young trees which have grown into forests. Anything left of a redwood tree will sprout again; it therefore is a difficult task to clear land overgrown with this timber.

This tree is now largely cultivated by the Italian Government on account of its many good qualities.

Juniperas occidentalis, which is found growing in the northern part of this State, is most beautiful in appearance, attaining a height of twenty-five to forty feet, is seven feet in diameter, and tapers very rapidly. It thrives well in the higher mountains, stands mostly isolated and scattered, and deserves extensive cultivation.

The *Juniperus*, which grows near Mount Diablo, is without a name as yet. It does not exceed fifteen to twenty feet in height; its foliage is of a light green color, and it combines every quality to make it a valuable ornamental shrub for our gardens.

Juniperas pachyphlœa is found in the southern part of the State. It is a large spreading tree, of fine appearance, with a very glaucous foliage. It is well worthy of cultivation.

Juniperas communis grows extensively in Oregon and in the extreme northern parts of this State. It is a low, spreading shrub, and of very little use.

The *Cupressus macrocarpa* (Monterey cypress) is found in Monterey county exclusively, and it is there confined to the locality called "Cypress Point." The tree is spreading, its branches overhanging each other, and forming a dense mass. It grows fifty feet in height. This *Cupressus macrocarpa* is so well known here, and so extensively cultivated, that it is unnecessary to give a full description. It is one of the easiest cultivated, and is in many respects a deserving tree.

The *Cupressus Goveniana* is found in Monterey and San Diego, it growing from five to ten feet high. Small trees of from six to seven inches in height have been found cone-bearing.

Another *Cupressus*, which is found near Mendocino, is as yet undetermined.

Also, the *Cupressus* growing near Clear Lake is in want of a name and full description.

Torreya California (nutmeg), which is found near Ukiah and in Marin County [also, near Napa.—ED.] The foliage is very large, and of a shining dark green color. The berries are as large as a pigeon's egg, and are inclosed in a husk. The nut resembles the well known nutmeg.

The *Taxus brevifolia* (yew) is a beautiful evergreen growing near the Coast Range and on the Sierras, two thousand feet above the level of the sea. This graceful tree, with its light, vivid green foliage, and its drooping branches, grows to the height of thirty feet. The berries containing the seeds are, when ripe, of a red color. It is a tree worthy of very extensive cultivation.

Ephedra antisyphilitica is a new species, resembling the well known *Cytisus;* it is a spindling growing shrub of from five to ten feet high, and found principally near San Diego and Mono Lake.

OBSERVATIONS AND SUGGESTIONS

RELATIVE TO

CALIFORNIA ROOTS AND BULBS.

BY DR. A. KELLOGG.

To illustrate by example, let us "consider the lilies how they grow." First, premising that observations made by respective inquirers in varied climates, soils, localities, etc., will ever leave ample room for diversities of opinion, and practical adaptation of principles. With this general proviso, we submit the following remarks:

In a climate like ours, clearly discriminated by a wet and long dry season, we find these bulbs located, say about six to ten inches deep; the vital fibers, or true roots, shoot downwards ten inches to a foot below this point, in search of food and moisture; thus radiating from the leading germinal end of mostly oblong scaly bulbs—the respectively dormant fibers that have "closed in" serving as stays, etc. Is it not evident, then, that such bulbs require a flowerpot at least eighteen inches deep? Hence, ordinary pots must be utterly useless, or worse—cramping or inadequate to meet the primary natural indications. Let any one take an improvised five-gallon kerosene or alcohol tin can, or the like, which is good enough, not to say the best, cut out one end and nail narrow slats around the upper margin to add symmetry, avoid unsightly dents, and for convenience in handling; and if one slat is dressed, paint the name, to avoid annoyance of displaced labels; paint rudely inside and out, to preserve; punch say at least three large holes in the bottom; plant, as in nature, in any good soil well composted, and set your can, keg, or crock in a shallow pan of water. You will soon have the pleasure of seeing a stout stem, of the size of your thumb, rising up and "rejoicing as a strong man to run a race," and flowering gorgeously. Let it generally be observed here, once for all, that in California underground irrigation, or water supply from beneath, is the requisite rule or law to be observed, especially in their advanced stage of growth. Many California plants are not only injured but killed outright by spraying beneath our California sun. To illustrate these principles, let us take a few other examples, to show that if a plant spends its vital force searching for requisite food or moisture; or, if the law of supply be reversed, efforts baulked, or attained at too great an expenditure, little or nothing else can be accomplished. Abronia arenaria, as the specific name indicates, grows in sand. If found on deep sand-drifts of the bay shore of San Francisco, or inland, it shoots down a stout fusiform root of indefinite length, but often poor and puny is the top, that creeps not far from the crown, with perhaps few flowers and little fruit. But mulch a moist, black, brackish, cracky soil with only six or eight inches of sand, and it will go down to or a little into it, spread abroad its forked subdivisions and fibers almost or quite horizontally; the crown sprouts now run riotously, mantling the sand with vines full of pink flowers in fruitful umbels unnumbered. Often one spray of water above will kill it entirely; or, the root remaining, it will sometimes come up and flourish again if surface irrigation is neglected, even two years afterwards. A similar short horizontal spread of root is seen with alfalfa on tule or lands fairly shaking and rocking with a peaty carpet; and so of a thousand roots, otherwise exceedingly deep and prone to delve. The legitimate, practical inferences we leave to the good sense of every enlightened stock raiser, farmer, and cultivator. Let us return, then, and review the rationale involved relative to bulbs, and also consider other facts, and, if possible, answer such queries as cast a shadow over the path of inquiry.

There are not only tides in the ocean but in the earth, air, ethers, and the seasons as they roll, as well as "in the affairs of men"—a season of harvest, resting, and repose. Anon, the rippling raintides bear away the raw material and soluble salts from above; but when the return Spring tides begin fairly to set in—say from about the last of May or in June—when, for all intents and purposes, the rains have ceased, then, prompted by the Divine law of just reciprocity, the tidal waves return, laden with Winter's wealth, commingled and fitted for the varied uses of plants that people the earth.

The import of all this is, that henceforth the commercial current should be towards and not from the hungry and thirsty mouths or radicle spongioles; otherwise, they perish or pine, with feeble struggling, or sickly efforts, to maintain a precarious existence.

Florists are apt to complain that many of our bulbs, ere they bloom, lose one essential beauty of plants, viz.: their radicle leaves, which, they say, "dry up and leave the stems looking naked and bare." Where this is the charmed law and order of development, it is better some than the barren fig tree's fate, and I suppose we must submit. But let us lift our eyes to their history a moment, and see if light arises. They are frequently found upon exposed hills and slopes, rocks, etc., descending down dry and very hot valleys, into debris and alluvial bottoms, where sand or loam with underground moisture abounds. The very same plants are seen to rejoice best where they find some shade and shelter; otherwise, they bespeak a struggle for existence, *i. e.*, their leaves prematurely or naturally dry up early to save exhaustion. In half shades, along high banks and slopes, contiguous to creeks, with adequate subsoil moisture, we see Cyclobothra alba, with long and beautiful glaucous leaves, say an inch and a half wide, eighteen inches to two feet in length accompanying the flowers, ten to twenty in number; the golden C. pulchella and most others tolerate more sun and drought, with their companions the manzanita (Arctostaphplos glauca), oaks, etc., near whose shades it is want to linger; but its best forms love rich, rocky, half shady drains—leaf and flower companions to the close. Witness Seubertia laxa, two to four feet high; the same Dichelostemas and Brodiœas, ten to fifty flowers, and green leaves in similar grace and completeness of beauty. The list might be extended beyond the reader's patience; what we desire to say and impress is, that the same plants exposed are barely one quarter as large, and no green leaves at all, or at best a poor apology; and so of numberless others.

What is the lesson the facts teach? Surely that the gardener and florist should imitate their very level best; and it is by no means difficult to exceed the higher standard. Our plants are not likely to be exceptions in the main to general experience. Besides, it would be folly to fold one's hands at the very first failure—if plants excite our pity or give great care and solicitude, the cost is too great for the pleasure returned. With what delight, on the contrary, do we behold one joyously filling up the full measure of its glory! If these general suggestions be true, says the objector, "why do so many rot by moisture?"

That is a pertinent question; but, first, how do we proceed? In the loose soils where we usually place them, are they as well protected as in their native matrix. The soil then must need be packed or tramped firmly and uniformly, as one would pack a mold in the foundry; or even more so in soils of no great interstitial absorption.

It is the life struggles with difficulties that bring out the best qualities of the man—the fruits and flowers, roots, and bulbs, born of the Great Mother. Resistance above reacts below, gives spread, depth, and vigor in the direction of least resistance, at this juvenile stage of life; young plants, like children—especially "Young America," require to be kept back a little. A precocity that mimics mature display in the glare of the world, is ever the sure harbinger of premature exhaustion and decay. The root—the strong foundation—is of first consideration in all structural building, and should be well laid, cherished, and preserved. We do not say it should be founded upon some suitable rock, but we sometimes think so; radiated heat and graduated temperature, sweetness of drainage, and it would seem reasonable, that in due time some resistance from below also, were all requisites of high culture. May not the florist, in his undue solicitude, be also to blame, and by some shortcoming fail, or from excess undo by overdoing? Suppose he flood too continuously between loose scales, adding excessive heat withal, ought not he to expect just the result urged? Now, we seldom see in Nature bulbs sheltered by shrubs, rocks, logs, bark, leaves, etc., or in very compact soils rotten at the tips of the scales, and hence a lure to maggots and grubs; nor often in such sandy and gravelly soils as readily absorb, drain, and disperse this excess of top moisture. We appeal to the observations by careful collectors. Let us then copy the best conditions, and we feel assured that the result will confirm our rather hasty hints.

In conclusion, we dare not presume even a tithe has been noted—in short, only what may be considered peculiar to climatic conditions and observations here is thought necessary. Erudite and complex recipes relative to proper mixtures of soils, and common management, may well be left to the knowledge and judgment of those who believe in them. With such a wealth of heat and sunlight above as falls to the lot of California, and no lack of the commercial medium moisture below, I see no reason why we may not allow nature, under human hands, to grow her fragrant white Lady Washington lily six or seven feet high, with ten to thirty or more flowers, just as we see it wild. L. bloomerianum, too, is a perfect giant among lilies, when at its best—a right royal display—the Divine Teacher himself being judge. Nor why L. superbum in a southern bog should be eight feet, with the best part of a hundred flowers, as we have seen it there, and still the marvelous beauty is ever new as we retrospect. Even our little orange *L. parvum* I found at the Sierra summit, over five feet high and fifty flowers—carefully counted—but the plant was sheltered and shaded by an old emigrant water-tank, stilted up, now dry and long ago abandoned, but its roots found a fair supply of water from beneath.

THE INSECTS OF CALIFORNIA.

BY DR. H. H. BEHR.

There is a pervading opinion in this country that our cereals, as well as garden fruits, are nearly exempt from the ravages of insects injurious to vegetation. To a certain extent, and for the present, this supposition might hold good, and for good reasons. California is a new country, that never before had either agriculture or horticulture of any amount, and the plants that now are cultivated are all foreign, the soil to none of them being native of California.

So it is clear that the exemption from insect ravages is not a happy peculiarity of California, as it has been represented by some learned gentleman, but a transient state common to countries where extensive cultivation is of recent date, and refers to plants not indigenous to the soil.

There is a law in the economy of nature which, perhaps, may be called "the balance of power," for it is antagonistic to the preponderance of any particular species, tending to the extirpation of others. In the animal kingdom, it is chiefly this law that sends epidemics to decimate certain species, when by predominant multiplication they threaten to supersede the others; in the vegetable kingdom, it is chiefly by the existence of certain insect parasites on certain plants which are multiplied in the same proportion in which, by a one-sided cultivation, the plants on which they feed attain an undue preponderance.

Now, these insect species will sometimes immigrate with a new cultivation, and others, being indigenous and feeding on certain plants, will adapt themselves to the introduced plant and prefer it to the native one, on which they formerly fed.

Starting from this point of view, it will perhaps be of some interest to watch the ravages of some insect larva, on vegetables not indigenous to our soil.

First—Carpoiapsa pomana, L. A maggot that feeds, in Europe, inside of apples, which fruit is disfigured by its ravages. This species evidently is introduced, and till now has proven harmless, as its rarity prevents disfiguration to any extent. The first specimen of this little moth I received from Dr. Cooper, well known for his valuable work on California birds. Since then I caught only one other specimen, two years since.

This little moth passes through many generations during two years, and only from Fall to Winter the caterpillar feeds in the fruit. From Spring till Fall it is found in decaying wood, underneath the bark of apple trees; and here is the weak point of the species. We can check their progress by not allowing any sick fruit tree to remain in our gardens, for in doing so we cut off the means of their larva sustenance for at least two generations, during which it feeds on the decaying wood of the sick and superannuated trees.

Second—Cidaria epilobii (Behr). This neatly-marked geometra was in former time a great rarity, when its caterpillar fed only on the different species of the epilobium; but since the fuchsias have made their appearance in our gardens this cidaria left the native plant and fancied the exotic, in such a way that they became troublesome to our cultivators.

This is an interesting circumstance, as it affords another proof of the close affinity of epilobium and fuchsia (proved besides by the larva of deilephila lineata), and, too, by the larva adopting the colors of the petioles of the species of fuchsia on which it feeds, so that in some species the larva keeps green, and others showing a red dorsal stripe, mimicking the same coloration in some of the fuchsia varieties.

Third—Tetracis sp. The caterpillar of this undescribed geometra is very commonly found in gardens, where it chiefly affects rose leaves, ivy, and most of all the New Zealand varieties. As I never found this caterpillar anywhere else but in gardens and on cultivated shrubbery, I expect the insect exotic, and introduced together with some ornamental shrubbery. Nevertheless, it is possible that, like the cidaria epilobii, it may be a native of California, and only has adapted itself to the above named plants.

The caterpillar lies in spun-up leaves, by which circumstance it disfigures the shrub which it inhabits considerably. It transforms between spun-up leaves into a white chrysalis (a very rare coloration in the group), and differs sufficiently from other species of tetracis to constitute, perhaps, even the type of a new genus, intermediate between urapterga and tetracis.

As to remedies against the cidaria and tetracis larva, I would recommend protection to insectiverous birds that may breed in the garden, as they are known to destroy a great number of geometrida larvæ, commonly called canker-worms.

OUR FORESTS.

BY EZRA S. CARR, PROF. OF AGRICULTURE, ETC., UNIVERSITY OF CALIFORNIA.

At a recent meeting of the Oakland Farmers' Club, Hon. J. W. Dwinelle read an admirable paper, embodying his observations on tree planting, during an extended tour in Europe. His remarks have a direct bearing upon the question of the hour, viz: how shall we plant our streets and the borders of our farms, in the most permanently useful and economical manner? And he also gave us much information concerning the success of the work of rehabilitating the wastes created by a rude and selfish civilization. It is civilization of a certain sort which is rapidly disforesting this country, and unfitting it for the purposes of agriculture.

In Europe trees are planted on worn-out lands, to renew them. A gentleman in Germany told Mr. Dwinelle that his family owned large plantations of trees. The oldest of them had been planted about twenty-five years, the last would be ripe for use at one hundred and twenty-five years old, yielding three per cent per year on the investment, which is the usual rate for secure loans. The science of forestry, as illustrated in older countries, shows that it is quite possible for man to make reparation for the injury he has done to the wild beauty of nature. But all such work is trifling, in importance and results, when compared with that which we are called to do in preservation of our noble forests, the source of almost boundless wealth to future generations.

Twenty years ago the amount of timber consumed in England was etimated at one hundred and fifteen million dollars, equal to the whole value of our foreign imports at that time, and of this, eighty million dollars was home grown. Oak plantations, at the common rate of forty trees to the acre, averaged two thousand two hundred dollars per acre in value. During the last twenty years, if we turn our attention to our own country, we shall find that the price of wood has quadrupled between the Atlantic and the Mississippi, a region once covered with immense forests. Nearly all the most valuable varieties for manufacturing purposes are exhausted, and the present supply is derived from the northern States of the interior, at a half dozen different points, where the work of destruction is going on with amazing rapidity. At points remote from transportation a frightful waste annually goes on, by the girdling of trees. The report of the Commissioner on Agriculture, for eighteen hundred and sixty-eight, sets down the available timber lands in the portion of country above alluded to, as one hundred million acres. The sawed and planed lumber in the States east of the Mississippi, in eighteen hundred and sixty, amounted to four hundred and fifty million cubic feet, while that consumed in fencing, buildings, manufactures, and cord-wood increased this "yield" for the year to six billion cubic feet. Taking the timber tracts together, good and bad, the average is not more than six thousand solid feet to the acre, or, in other words, the necessities of the population east of the Mississippi required the destruction of one million acres of woodland for that year. During the previous ten years the increase of cleared land amounted to twenty-eight million four hundred and twenty-eight thousand five hundred and fifty-one acres. Allowing three sevenths of this to have been prairie or other lands destitute of wood, we have an annual clearing of two million acres. The increase of population and their increasing wants would consume, in less than fifty years, every acre of forest in all that wide region.

Between the Mississippi and the Sierra Nevada we have no considerable forests, and already the planting of these has begun to attract the attention of the great body of agriculturists in Kansas and Nebraska. More trees, both fruit and timber, have been planted in these young States than in any other part of the Union. Further west there is scarcely timber enough to supply the wants of mining enterprises alone, until we reach the forests of the Pacific coast. The word "inexhaustible" has been so often applied to them that only a careful examination of commercial and other statistics may seem to justify the warnings which scientific men in California and elsewhere have been giving for the last few years. The public lands in California, Oregon, and Washington have been so far trespassed upon that the strong arm of the National Government is needed to save them from spoliation.

There are millions of acres in California worthless for any purpose but the growth of timber, which are being rapidly transformed, by private owners, into wastes where no water is—great patches of desolation, uncheered by the ripple of mountain streams, but torn by the anger of devastating mountain torrents.

Forests are the mothers of rivers, the great regulators of the distribution of moisture. The economic questions involved in their preservation involve those of climate and population. The soil, in many cases, has been made by the trees which grew upon it; and the permanent agricultural prosperity of a country must depend upon the proportion of its territory kept entirely in forests, or equivalent plantations.

The lower or meaner purpose of the vegetable world, as Schlieden says, is doubtless to serve the material requirements of individual men and societies; its loftier uses are seen in the regulation of physical processes which concern whole countries, regions, and generations. These are among the greatest questions with which the scientist and the legislator have now to deal. The popular intelligence of the country is manifestly unequal to it, for the laws of vegetable meteorology are, as yet, little understood; and no time is to be lost, if, in our selfish grasp for immediate profits and advantage, we are rapidly unfitting the land for the occupation of a developed and spiritualized civilization. How we are to set about this work of protecting our forests, and preserving the true equilibrium between the animal and vegetable inhabitants of this part of the planet, will be made the subject of future communications.

SAN LORENZO, ALAMEDA COUNTY.

READ BEFORE THE HORTICULTURAL SOCIETY.

San Lorenzo is a small town or village, with possibly a population of not more than one hundred. It has a school house and Post Office, two hotels or boarding houses, one large store, and a blacksmith shop, perhaps the most extensive in the county, under the special supervision of Mr. Henry Smyth. The first objects that attract the traveler's attention in passing through this beautiful valley are the many extensive fruit orchards, producing nearly every variety of fruit. But I will leave these fine orchards at rest, as they are at present, and speak of ornamental trees and shrubs. It is gratifying to all who have any regard for horticulture to know that nearly all the intelligent farmers in this locality have more or less trees planted for shade and shelter, and the beautifying of their homes, while all are convinced of the necessity for planting more every year. So much has been said on the subject of planting trees, and the many benefits to be derived from so doing, that one would think there could be no more room for further suggestions.

Nevertheless, the majority of the people are indolent and heedless regarding this grand branch of industry; we must, therefore, reiterate the subject, and try to assert the good of having a few trees on every farm. Would that every farmer in this county could be induced to see and appreciate, as I do, the many advantages to be derived, and the comfort that would be afforded to their stock, both Winter and Summer, by having a row of Monterey cypress, pines, eucalypti, or acacias around his farm. What a pretty boundary line any of those trees would make, and what comfort it would afford to the animals that roam within its limits. In some large and rather elevated fields here there are a few oak trees remaining, and under these can be seen the cattle and horses sheltering during the Summer, they having no other comfort or protection from the cold westerly winds and the burning hot sun but these few native oaks which nature has provided. By this every intelligent man must perceive the benefit to be derived from having some trees on his land. In this country there can be no excuse, blessed as we are with such a temperate climate, and possessing soil which is noted for its fertility and productiveness, and where almost every variety of tree will grow and thrive better than in any other part of the world. My experience here, during the period of one year and nine months, has enabled me to report how many of the ornamental trees and shrubs grow and prosper in this locality. In April, eighteen hundred and seventy-one, I had occasion to plant a variety of evergreen trees and shrubs, such as Monterey cypress, pines, blue gums, acacias in variety, melaleucas in variety, pittosporums in variety, lauristinus, and many other trees and shrubs which I will not wait to particularize. All these have done well. During the Summer of eighteen hundred and seventy-one I watered them all once a week. Last Summer I gave no water whatever. I have not lost a tree or shrub—they have all made splendid growth. The gum trees, when planted, were three feet high—they are now twenty-five feet, the trunks, on an average, measuring six inches in diameter. The Monterey cypress were very small, not more than two and a half feet high—they are now from twelve to fifteen feet, well developed, and pretty ornamental trees. Some of the acacias are also very fast growing trees. *A. latifolia*, *A. Mollisima*, and *A. floribunda* are fine, strong growing varieties, and make fine ornamental trees in a few years. They are also well adapted for the roadside, or for planting around farms, as they grow so rapidly. Some people complain that they are straggling growing trees, and hard to be taken care of. In my opinion this is wrong. I believe there have not been any trees introduced into this country which, to the present time, do better, or grow more bushy by discreetly using the knife while young. It is true, as in all other work, there must be some little science and judgment used in pruning, as the inexperienced may mutilate, if not kill many trees. By the above statement it may be seen that the blue gum has made a growth of twenty feet during one year and seven months, and the Monterey cypress from ten to twelve feet.

Until recently it was the opinion of many that trees would not grow unless watered during the Summer months. Now, it is considered an established fact that nearly all the trees and shrubs which have been introduced here will grow well under ordinary treatment during the first year; and these can be purchased at any of the San Francisco nurseries at from twenty-five to thirty dollars per hundred, according to size—therefore there should be no time lost, after the first rains have fallen, in planting out trees and shrubs, and also a few flowering plants. These will make your home happy and comfortable. By all means I would recommend planting as early as possible. By so doing the plants will commence to grow by the first dawn of Spring, and will have a good start before the dry season sets in, and, by keeping the ground hoed frequently during the Summer, they will need no other care.

P. J. FORD.

FIRST SEMI-ANNUAL EXHIBITION.

RULES AND REGULATIONS.

1. The exhibition will commence on Thursday, August twenty-second, and close on Saturday, September seventh.

Articles offered for competition, according to premium list, must be entered on or before Tuesday, August twentieth, and delivered before twelve o'clock, on Thursday, August twenty-second.

Cut flowers, competing for premiums, under Class III, must be delivered before twelve o'clock, noon, of Friday, August twenty-third.

Bouquets and floral designs, under Class VII, must be delivered before twelve o'clock, noon, on Tuesday, August twenty-seventh.

2. All articles must be properly named and entered in the name of the grower or owner.

3. Exhibitors are requested to present to the Secretary a list of their contributions, and to state whether they are for competition or not.

4. All articles for competition must have been produced by the exhibitor, or have been in his possession for at least six weeks.

5. Competition for premiums is open to all. An entrance fee of ten per cent of the premium competed for must be paid to the Secretary by exhibitors who are not members of the society, on or before the day of opening.

6. All articles received for exhibition will be entirely under the control of the Committee of Arrangements, who will give them their proper places and take all possible care to return them uninjured.

7. No person or persons shall be entitled to receive more than one premium for the same specimen of plants, flowers, fruits, vegetables, etc. If any specimen has obtained a premium in a collection it shall not be credited to the same person in another collection, nor shall any premium be awarded to a single variety which may be included in any of the collections.

8. No article on exhibition will be entitled to a premium unless it possesses points of superiority; and the judges are strictly required to withhold premiums if, in their opinion, the articles exhibited do not merit them.

9. Articles of a suitable character, not mentioned in the premium list will be received, and, if thought deserving, will be recommended for premiums.

10. A premium will not be awarded when the article is not worthy in case there is no competition.

11. After the judges have made their awards, the prize specimens wil be labeled, and cards with the names of exhibitors will then be placed on their articles.

12. Articles for exhibition must be entered and staged by numbers and no cards bearing the names of the exhibitors can be attached to them before the awards are made public.

13. Dishes, glasses, and vases, for the display of fruits and flowers will be furnished by the society.

14. All premiums that are not claimed within three months after the close of the exhibition shall be forfeited to the society.

15. No article can be removed from the place of exhibition unless by permission of the Committee of Arrangements.

16. The judges will be required to base their decision upon a recognized standard, as far as practicable, and their decision, in all cases, will be final.

17. An auction sale may be held after the close of the exhibition for the disposal of such articles as the exhibitors may wish to sell.

APPOINTMENT OF JUDGES.

Exhibitors competing for premiums will meet on the evening of the opening of the exhibition for the purpose of appointing judges; in case the exhibitors neglect to appoint them, then the Trustees of the society shall name the judges.

No person can be judge and exhibitor in the same class.

AWARDS.

The judges must hand in the awards in writing under sealed envelopes to the Secretary of the society, on or before the third day of exhibition. The awards will be opened by the Committee of Arrangements, and announced on the following day.

THE EXHIBITION.

The Horticultural Hall was opened to the public on Thursday, August twenty-second, eighteen hundred and seventy-two, under the management of the Bay District Horticultural Society, when Professor H. N. Bolander, the President of the society, made the following remarks:

LADIES AND GENTLEMEN: It behooves me, as President of the society, to make a short and brief statement of its history.

Having recognized the necessity of a society, whose object and design should be to bring before the public, from time to time, as it were in a collective view, useful and ornamental vegetable productions of our own as well as of foreign lands, and whose aim should be to disseminate useful knowledge on objects of the vegetable world, that might contribute to increase the minor and larger industries of our State—we organized this society, to fill this want, in October, eighteen hundred and seventy, and incorporated it in eighteen hundred and seventy-one.

The original members were thirteen in number; they increased, however, steadily; and the society consists to-day of seventy regular, five life, and ten honorary members.

In eighteen hundred and seventy-one we held, in connection with the Mechanics' Institute, our first exhibition, which was an acknowledged success. A suitable library has been established, containing over two hundred volumes on agriculture, horticulture, and systematic botany. In the society's reading-room are constantly kept on file, for the use of its members, thirty different leading periodicals on agriculture and horticulture.

In a financial point of view we must confess the society is still weak; it is in need of a more general support of a generous public to become more useful and more influential. Our library should be increased, and an herbarium of useful and ornamental plants should necessarily be established.

The last State Legislature generously appropriated two thousand dollars, for the years eighteen hundred and seventy-two and eighteen hundred and seventy-three, each. This timely support will help materially in carrying out the society's legitimate object and design.

Under the auspices of the society is also published a monthly journal, devoted exclusively to the interests of horticulture, floriculture, and forestry.

The want of a suitable hall for holding our exhibitions was keenly felt. Fortunately, the society had, among its own members, men of enterprising spirit, who came cheerfully forward and bought and fitted up this spacious and beautiful hall. This new society within our own was organized and duly incorporated three months ago, and is known as the Horticultural Hall Association.

All this is the work of two years; due to the energy and enterprise of a few members, firmly devoted to a noble and edifying cause.

In future it is intended to hold annually two exhibitions, one in the Spring and one in the Fall.

ADDRESS OF PROFESSOR CARR.

The President then introduced Dr. E. S. Carr, Professor of Agriculture and Horticulture to the University of California, who delivered the following eloquent opening address:

It is a matter for congratulation that the people of the Pacific coast, and especially of San Francisco, have learned so to esteem their displays of art and industry as to warrant such annual exhibitions as will most fully illustrate our performance and possibilities. It was a happy conception to adapt the European Winter garden, a place combining instruction and innocent amusement, to our local circumstances, our more modest and humble beginnings, and to make the competitive horticultural exhibition its chief specialty.

For so great a public benefit, I have no doubt, the public will show substantial appreciation, but the results of the effort will not all show in your columns of profit and loss. The most valuable of them are found in tangible influences, by which beauty proves her divine origin and claim to our homage and devotion. Far excelling our expectations, it shows not only what nurserymen and florists can do in the way of enlarging the boundaries of nature and making her obedient to the demands of art, but it shows that where yesterday the miners' cabins dotted these barren sand hills, there is growing up a substantial civilization.

There is always a moral significance in a scene like this—a promise of better things to come—which is worth more than the objective reality. What is the meaning of nature, and what is the meaning of art? "Heavenly capital and earthly labor make the firm called Providence," and neither partner is seen comprehensibly without the other. I think this sublime partnership is never seen to such advantage as when some noble edifice or institution, some public park or art museum, is opened to the uses of religion, or charity, or education.

Every stone in the temple, every polished panel on which is written the record of the tree's life, the luscious fruits which displace the worthless wild product, the multiplied petals of the rose, are witnesses of nature's welcome to the hand that unfolds her secret store of uses.

We live, we are told, in a godless age, the tendency of which is toward materialism. The application of machinery to our industries, the thousands of inventions which emancipate men from the bondage of toil, are, we are told, of questionable advantage. There is a maudlin sentimentality in these moans over the degeneracy of our own times, and I notice that these mourners make the smallest investments in things of an immaterial value. They invest in cheap prayers—cheaper than Sir Godfrey Knellers', who "prayed on canvas;" cheaper than Mozart's or Handel's, who prayed, as David did, on stringed instruments and organs. There is no worse infidelity than that which refuses to see the infinite, wonder-making Builder in the houses which he has fashioned with human hands, as well as in the wonderously-carved outlines of the eternal hills. There is a tendency to exalt nature and natural beauty far above the products of human intellect and skill. It is the last enfranchisement of thought to see in art the higher nature, and that man is not man until he is cultivated.

> "Earth proudly wears the Parthenon
> As the best gem upon her zone,
> And morning opes with haste her lids
> To gaze upon the pyramids.
> For, out of thought's interior sphere,
> These wonders rose to upper air;
> And nature gladly gave them place,
> Adopted them into her race,
> And granted them an equal date
> With Andes and with Ararat."

It is easy to see how much art has had to do in developing humanity out of the creature man, who may be studied to-day in all his primitive naturalness, a fit companion for the bison of the plains. First, we see his superiority to the brute, not in provision for food or shelter, but in the decoration of his person. In colors warranted not to run, the Polynesian dandy still struts in his Dolly Varden skin, a parrot tattooed on one side and a palm tree on the other. By and by his love of finery will yield to a desire for comfort; his earrings, his feathered head dress, and his paint will be made over to the female of his species.

Now, all the hints of nature are decrees. This savage adornment puts the gratification of taste above the merely animal wants, and all that we see as exterior of brute nature is built up with reference to man's higher necessities and powers. This is our warrant for art. The universe is not a gallery of living pictures, a sublime mystery to move our awe and wonder. It is a storehouse of the noblest supplies for our industry and our holiness (for holiness simply means wholeness); it is a school for the development of our whole being.

The stones lie in the quarry in smooth plates, ready, almost, for the builder's hand, or to be ground into food for trees and flowers. Buried under the roots of the mountains, or crumbling into soils, or wrought into cathedrals, or carved into statues of the gods, they are pure use, and are as natural in one place as in another.

You remember the story of the shipwrecked Phœnician sailors, who, stirring the embers of the fire they had built on the sea shore, discovered the fused particles of sand and alkali which we call glass. It shared the aboriginal fate of things for a long period—that is, became a personal ornament—but after this apprenticeship, became, first, solid air, and then, in the mirror, solid space, and finally, in the telescope and the microscope, it became the all-seeing eye, revealing a world in every star and a world in every atom! This is what it is the nature of sand and alkali to become when it is married to art. This truth is illustrated at every step in our lives. It is a wonderful pursuit, this following of nature into her realized spirit, realized forms and services. The silk worm weaves its cocoon, winding sheet, and cradle for the life that belongs to its race, but does not exhaust thereby the uses of its lovely manufacture, which in royal robe and 'broidered banner comes into still higher service.

Here is a volume—leather, cotton or flax, oil, and soot are its materials; but in these the soul of Shakspeare or of Dante has been caught and imprisoned. There is no end to these transfigurations. We can never know that we have reached the last or best use of anything. We plant the eucalyptus for timber, shade, and fuel, and then find it a cure for malarious disease. We burn the coal, which gives us the light and heat it gathers in elder ages, and the very smoke reappears in delicate perfumes and gorgeous dyes.

The old definitions of art are becoming obsolete through the advancement of the sciences. A more universal knowledge of these will give a new impulse to the fine, as already it has to the useful, arts, and to none more certainly than this youngest art of landscape gardening, and its handmaid, horticulture. Every principle of art is founded on science, and how much more scientific knowledge is needed by him who works with living materials, and on a grand scale, than by him who operates on canvas or a single block.

It is claimed that architecture is the highest of the fine arts, as it employs painting, sculpture, and music; and if this be so, I think there is a higher still, which includes agriculture also—which takes a segment of the earth's surface and makes it a fit abode for earth's sovereign. This art, by whatever name it may be called, is in its infancy, and will be slow in growth, for it depends upon much that is not strictly within the domain of art—upon the general culture and the development of a true social spirit.

My house may be lined with cedar and camphor wood; its courts may be paved with mosaics richer than those of the Alhambra; Aphrodite may rise in the spray of my fountains, and Morpheus scatter poppies in my luxurious chambers of rest; crystal domes and walls may inclose as with a new heaven some new tropic earth for my delight; but it can never be the "House Beautiful" while there is a beggar or an outcast at the gate.

At Chatsworth, the residence of the Duke of Devonshire, the Arboretum is filled with trees from every part of the world. The conservatory covers an acre of ground, in which seven miles of pipes are used to distribute heat, and forty miles of glazed sash to keep out cold; from its gallery you can look down into a forest of tropical foliage, palms, and ferns, orchids and cacti, the royal lily of the Amazon, the lotus and papyrus of the Nile. This is a grand showing of what aristocracy, which has tried many costly experiments for us, can accomplish in the hereditary home of a family. For a thousand years its high fences have inclosed high-bred men and women, noble architecture, and millennial trees, through periods when ignorance was a standing threat against order.

Nearer home, at Lewellyn Place, near Orange, New Jersey, we have what I consider the most perfect example of what coöperation and association will do under a democracy. Only time is needed to produce results equal to those at Chatsworth, and the hundred owners increase the interest, pleasure, and advantage a hundred fold.

In our country, the public park shows what estimate the people put upon beauty; it has a very different and greater value than Kew, or the Garden of Plants at Paris.

A number of families may combine to create a paradise of rural enjoyment, every member of which would increase his individual capital in contributing to the enjoyment of all. This is democracy, social and constructive. The meaning of that word is continually enlarging. Our forefathers said it meant liberty and equality, and that equality meant the equal standing of man, as man, before his Maker. Now we mean

by it, "the quality of the quantity, the whole, the royalty, the imperial attributes of the people."

The idea of perfected manhood inheres in this of popular sovereignty, and here is our warrant for education. Our sovereign is not merely a biped animal, twenty-one years of age; nor yet one further endowed with intellectual gifts, enabling him to secure every selfish end. Manhood only is attained when these are dominated by the sovereign soul, "open on all sides." This "freeman" will make a home suited to his character, enriched with all the treasures of nature and art.

"To learn what is beautiful is the first step; to live it is the second."

Art has its political relations; it is fostered by liberty, and all its tendencies are toward peace. "Bowie knives are the thorns on the human crab apple tree, which disappear when civilization reclaims it to sweetness." The four and a half millions of soldiers which make up the peace establishment of Europe—the annual cost of them, and loss through them, applied to industry, would fill the land with plenty. Applied to education, it would make war impossible. Universal education in art would of necessity create a higher civilization.

If the subject were not too large for the hour, I would like to show what horticulture especially might do in reference to popular refinement. It has created the rural beauty of England; it has recovered Holland from the sea. Originally there was only one variety of coniferous tree in Great Britain—the Scotch fir. Now there are a hundred. The seacoast of France, covered, like so much in this vicinity, with shifting sand, has been reclaimed by the culture of the pinaster.

LEGISLATIVE PROTECTION.

One of the recognized objects of an association of this kind should be to keep the duty of legislative protection and promotion of arboriculture before the people. And I hope to see much accomplished through the University, where they have ample facilities for growing every useful tree and plant which our climate will sustain. I expect to see our railroad tracks made green with turf, and pleasant with trees, instead of dismal stretches of noxious weeds; and their stations beautified with rural surroundings.

I expect to see villages grow up in which inequality of surface and crookedness of streets, and "eccentricities" of building will be tolerated. For the Germans, our masters in æsthetics, to whom flowers are as necessary as corn, will add their Old World culture to our New World vigor and strength.

A small part of the money that has been expended in so-called improvements, which are but costly violations of taste, would make San Francisco one of the most picturesque of cities.

Enough is wasted in shoddy display to inclose our shifting sands with walls of verdure, thus modifying our climate, tempering our winds, and making it as healthful as beautiful. And enough is worse than wasted to build and sustain our temples of art and learning, our parks and public gardens, and make the fairer Athens of which the poet dreamed.

We only need to feel that these things, just as much as our banks and railroads, are factors in civilization. Nor can we boast of what nature has done for us until she is justified of her children—

"Who toil to leave as their bequest
An added beauty to the earth."

ARTICLES EXHIBITED.

Class I.—Plants.

By F. Ludemann & Co.—Collection of flowering plants, in bloom; collection of greenhouse and conservatory plants; collection of tender ornamental foliage plants; collection of flowering bulbous roots; collection of climbing plants; collection of new and rare plants; collection of roses, in pots; collection of coleus; collection of fuchsias; collection of double geraniums; collection of variegated-leaf geraniums; collection of zonale geraniums; collection of flowering begonias; collection of pansies; collection of pinks.

By Miller & Sievers—Collection of flowering plants; collection of flowering bulbous plants; collection of new and rare plants; collection of ferns; collection of coleus; collection of fuchsias; collection of double geraniums; collection of variegated-leaf geraniums; collection of zonale geraniums; collection of flowering begonias; collection of auriculas and primroses; collection of pansies; collection of verbenas; collection of petunias; collection of cactus; collection of California native plants.

By Theo. Brown (of Woodward's Gardens)—Collection of tender ornamental foliage plants; collection of tropical plants; collection of ferns.

By E. L. Reimer—Collection of flowering plants, in bloom; collection of evergreens indigenous to Australia; collection of coniferæ, native and foreign; collection of specimen plants; collection of plants for greenhouse and conservatory; collection of bedding plants; collection of hardy ornamental foliage plants; collection of climbing plants; collection of plants for rockeries and hanging baskets; collection of roses, in pots; collection of coleus; collection of fuchsias; collection of double geraniums; collection of variegated-leaf geraniums; collection of zonale geraniums; collection of plants in three-inch pots.

By E. Meyer—Collection of plants for the greenhouse and conservatory; collection of ferns; collection of variegated-leaf begonias; collection of verbenas; collection of pinks; collection of cactus; collection of specimen plants.

Class II.—Miscellaneous.

By E. L. Reimer—Rustic hanging baskets; wire hanging baskets.

By E. Meyer—Flower stand; fern case.

By F. A. Miller—Miniature garden; design for a suburban garden.

By Meyer & Reimer—Miniature garden; rockery, in form of grottoes.

By G. H. Gruenhagen & Co.—Garden frame and wirework for flower culture.

By S. Tonnar, of San José—Rustic work.

By Hill, of Napa—Rustic work.

By Charles Mohr, of Vallejo—Plan for a public square.

By C. Stephens—Collection of coniferæ cones.

Class III.—Agriculture.

By Buckley Brothers, of Hopeton, Merced County—Samples of cotton plants from a field of two hundred and fifty acres.

By the California Cotton Growers' and Manufacturers' Association—Samples of cotton plants raised at Bakersfield, Kern County.

By J. Neumann—Silk culture, in all its branches, from the hatching of the eggs to the reeling of the silk.

By George West, of Stockton—Samples of California port wine; samples of California sherry wine.

By the United Anaheim Wine Growers' Association, of Anaheim—Samples of brandy; samples of white wine; samples of angelica wine samples of port wine; samples of red wine.

Class IV.—Cut Flowers.

By E. L. Reimer—General display of cut flowers; collection of cut roses.

By F. Ludemann & Co.—General display of cut flowers; collection of cut roses; collection of cut pansies; collection of cut phloxes.

By Miller & Sievers—Collection of gladiolus; collection of cut roses; collection of cut pansies; collection of cut dahlias.

By E. A. Upton—Collection of cut dahlias; collection of gladiolus.

By N. Malmgren—Collection of cut dahlias.

By J. M. Thompson—Collection of gladiolus.

Class V.—Vegetables.

By Italian Company—General collection of vegetables.

Class VI.—Fruits.

By Z. W. Moore, of San Francisco—General collection of fruit.

By John Rock, of San José—Collection of twelve varieties of apples; collection of twelve varieties of pears; collection of twelve varieties of plums; collection of nectarines; collection of prunes; collection of quinces; collection of strawberries; collection of blackberries; general collection of fruit.

By James Rutter, of Sacramente—Collection of table grapes.

By A. S. Greenlaw, of Sacramento—Collection of apples.

By E. F. Aiken, of Sacramento—Collection of fruit.

By R. B. Woodward, of Napa—Collection of apples; collection of pears; collection of table grapes.

By W. B. & G. West, of Stockton—Collection of wine grapes; general collection of grapes.

By Carrington, of Florin—Collection of foreign grapes.

By Dr. J. Strentzel, of Martinez—Collection of oranges and lemons.

By Colonel Warren, of San Francisco—Fruit of the mespilus japonica

By T. K. Stewart, of Sacramento—Specimens of apples, pears, oranges and plums.

By L. A. Gould, of Santa Clara—Collection of desiccated fruits; bouquets.

By E. L. Reimer—Pyramid bouquet.

By E. Mayer—Funeral wreath and cross; floral decoration.

By August Duhem—Two baskets of flowers; bride and bridal bouquet; floral decoration.

By William Robertson—Table bouquets; wreath and cross; round bouquets.

CLASS VIII—ART.

By Mrs. A. O. Cook—Preserved flowers; Autumnal foliage; wax flowers.

By Mrs. Jane E. Cotter—Artificial flowers; wax fruit.

By Miss Romanse—Paintings of fruits and flowers.

By Miss Bessie M. Harrold—Water lilies of wax.

By Mrs. C. D. Alden—Wax flowers and statuary.

JUDGE ELECTED BY THE EXHIBITORS IN THE VARIOUS CLASSES.

CLASSES I, II, III, IV, AND V.

Charles Stephens, F. A. Herring, C. W. Mohr.

CLASSES VI AND VII.

C. Stephens, Mrs. A. O. Cook, N. Malmgren.

SPECIAL PREMIUMS.

E. L. Reimer, F. A. Miller, Charles Stephens.

PREMIUMS AWARDED.

CLASS I—PLANTS.

Articles.	Exhibitors.	Premiums.
Largest and best collection of flowering plants in bloom	F. Ludemann & Co.	$50 00
Second largest and best collection of flowering plants in bloom	E. L. Reimer	$30 00
Third largest and best collection of flowering plants in bloom	Miller & Sievers	$15 00
Collection of evergreens indigenous to Australia	E. L. Reimer	$20 00
Largest and best collection of coniferæ, native and foreign	E. L. Reimer	$40 00
Best and largest collection of greenhouse and conservatory plants	E. L. Reimer	$30 00
Second best and largest collection of greenhouse and conservatory plants	F. Ludemann & Co.	$15 00
Best and largest collection of bedding plants	E. L. Reimer	$15 00
Best and largest collection of hardy ornamental foliage plants	E. L. Reimer	$20 00
Second best and largest collection of hardy ornamental foliage plants	F. Ludemann & Co.	$10 00
Best and largest collection of tender ornamental foliage plants	Theo. Brown, of Woodward's Gardens	$20 00
Second best collection of tender ornamental foliage plants	F. Ludemann & Co.	$10 00
Best and largest collection of bulbous-rooted plants	Miller & Sievers	$10 00
Second best collection of bulbous-rooted plants	F. Ludemann & Co.	$5 00
Best and largest collection of tropical plants	Theo. Brown, of Woodward's Gardens	$25 00
Best and largest collection of climbing plants	E. L. Reimer	$15 00
Second best collection of climbing plants	F. Ludemann & Co.	$10 00
Best and largest collection of new and rare plants	Miller & Sievers	$30 00
Second best collection of new and rare plants	F. Ludemann & Co.	$20 00
Best and largest collection of plants for hanging baskets and rockwork	E. L. Reimer	$10 00
Best and largest collection of ferns	Miller & Sievers	$20 00
Second best collection of ferns	E. Meyer	$10 00
Best and largest collection of roses, in pots	E. L. Reimer	$30 00
Second best collection of roses, in pots, not less than twenty varieties	F. Ludemann & Co.	$20 00
Best collection of coleus	F. Ludemann & Co.	$10 00
Second best collection of coleus	Miller & Sievers	$5 00
Best and largest collection of fuchsias	F. Ludemann & Co.	$30 00
Second best collection of fuchsias	E. L. Reimer	$20 00
Third best collection of fuchsias	Miller & Sievers	$10 00
Best and largest collection of double geraniums	F. Ludemann & Co.	$20 00
Second best collection of double geraniums	E. L. Reimer	$10 00
Best and largest collection of variegated-leaf geraniums	E. L. Reimer	$20 00
Second best collection of variegated-leaf geraniums	F. Ludemann & Co.	$10 00
Best and largest collection of zonale geraniums	E. L. Reimer	$10 00
Second best collection of zonale geraniums	Miller & Sievers	$5 00
Best and largest collection of flowering begonias	F. Ludemann & Co.	$10 00

CLASS I—Continued.

Articles.	Exhibitors.	Premiums.
Second best collection of flowering begonias	Miller & Sievers	$5 00
Best and largest collection of variegated leaf begonias	E. Meyer	$10 00
Best and largest collection of auriculas and primules	Miller & Sievers	$10 00
Best collection of pansies	Miller & Sievers	$10 00
Second best collection of pansies	F. Ludemann & Co.	$5 00
Best and largest collection of verbenas	Miller & Sievers	$10 00
Second best collection of verbenas	E. Meyer	$5 00
Best and largest collection of pinks	F. Ludemann & Co.	$10 00
Best and largest collection of petunias	Miller & Sievers	$10 00
Best and largest collection of cactus	Miller & Sievers	$10 00
Second best collection of cactus	E. Meyer	$5 00
Best collection of plants, in three-inch pots	E. L. Reimer	$10 00
Best collection of best grown plants, not less than twenty-five varieties	E. L. Reimer	$20 00
Second best collection of same, not less than ten varieties	E. Meyer	$10 00
Best collection of plants indigenous to California	Miller & Sievers	$25 00

CLASS II.—MISCELLANEOUS.

Articles.	Exhibitors.	Premiums.
Best arranged pair of rustic hanging baskets	E. L. Reimer	$35 00
Best arranged pair of wire hanging baskets	E. L. Reimer	$10 00
Best arranged wire flower stand	E. Meyer	$10 00
Best miniature garden	Reimer & Meyer	$75 00
Second best miniature garden	Miller & Sievers	$40 00
Best exhibition of wirework for flower culture	G. H. Gruenhagen & Co.	Diploma.
Best exhibit of rustic work	S. S. Tonnar	$20 00
Best design for a suburban garden	F. A. Miller	$20 00
Second best design for a garden	C. W. Mohr	$10 00
Best arranged fern case	E. Meyer	$20 00
Best rockery	Reimer & Meyer	$50 00
Best collection of coniferæ cones	C. Stephens	$10 00

CLASS III.—CUT FLOWERS.

Articles.	Exhibitors.	Premiums.
Best and largest display of cut flowers	F. Ludemann & Co.	$15 00
Second best display of cut flowers	E. L. Reimer	$10 00
Best collection of gladiolus	Miller & Sievers	$10 00
Best collection of roses	E. L. Reimer	$10 00
Second best collection of roses	Miller & Sievers	$6 00
Third best collection of roses	F. Ludemann & Co.	$3 00
Best collection of pansies	Miller & Sievers	$3 00
Second best collection of pansies	F. Ludemann & Co.	$1 00
Best collection of dahlias	E. A. Upton	$15 00
Second best collection of dahlias	N. Malmgren	$5 00
Best collection of phloxes	F. Ludemann & Co.	$5 00
Best collection of hollyhocks	F. Ludemann & Co.	Diploma.

CLASS IV.—FRUITS.

Articles.	Exhibitors.	Premiums.
Best and largest collection of fruits	Z. W. Moore	$50 00
Best and largest collection of apples	A. S. Greenlaw	$20 00
Best twelve varieties of apples	John Rock	$10 00
Best and largest collection of pears	R. B. Woodward	$20 00
Best twelve varieties of pears	John Rock	$10 00
Best and largest collection of plums	John Rock	$10 00
Best collection of nectarines	John Rock	$5 00
Best collection of prunes	John Rock	$5 00
Best collection of quinces	John Rock	$5 00
Best and largest collection of foreign grapes	W. B. & G. West	$20 00
Second best collection of foreign grapes	—— Carrington	$10 00
Best ten varieties of wine grapes	W. B. & G. West	$10 00
Best six varieties of table grapes	R. B. Woodward	$5 00

CLASS V.—BOUQUETS.

Articles.	Exhibitors.	Premiums.
Best two baskets of flowers	A. Duhem, with Miller & Sievers	$15 00
Best pyramid bouquet	E. L. Reimer	$5 00
Best two round bouquets	W. Robertson	$5 00
Best four table bouquets	W. Robertson	$10 00
Best two wedding bouquets	A. Duhem, with Miller & Sievers	$6 00
Best funeral wreath	W. Robertson	$10 00
Second best funeral wreath	E. Meyer	$5 00
Best cross	W. Robertson	$10 00
Second best cross	E. Meyer	$5 00
Best floral decoration	A. Duhem, with Miller & Sievers	Special.

ADDITIONAL PREMIUMS.

Articles.	Exhibitors.	Premiums.
Best and largest exhibit of California-grown seed..	Sevin Vincent...............	........$10 00
Best and largest collection of California dried fruits	L. A. Gould....................	........$10 00
Best California white wine...........	United Anaheim Wine Growers' Association...	........$25 00
Best California red wine	United Anaheim Wine Growers' Association...	....Diploma.
Best California port wine..	George West....................	....Diploma.
Oranges and lemons..	Dr. J. Strentzel............	....Diploma.
Preserved flowers..	Mrs. A. O. Cook...........	........$10 00
Best specimen of ferns	Th. Brown..........	....Diploma.
Artificial flowers..	Mrs. Cotter..........	.... $5 00
Wax fruit...	Mrs. Cotter.....	....Diploma.
Water lilies of wax..............	Miss Bessie M. Harrold	.... $5 00
Paintings of fruit	Miss Romanse..............	....Diploma.
Rustic work.............	M. Hill.............................	....Diploma.
Autumnal foliage..	Mrs. A. O. Cook..........	....Diploma.
Wax flowers..	Mrs. A. O. Cook..........	....Diploma.
Meritorious exhibition of silk culture.....................	J. Neumann................	........$50 00

TRANSACTIONS OF THE
SANTA CLARA VALLEY
AGRICULTURAL SOCIETY,

FOR

THE YEAR 1872.

REPORT.

To the honorable the State Board of Agriculture:

Gentlemen: Following you will find the report of the Board of Directors of the Santa Clara Valley Agricultural Society, as required by law:

FINANCIAL STATEMENT.

		Amount.
Cash on hand January, 1872		$2,391 30
Cash receipts from all sources		6,694 60
Cash warrant from State of California		2,000 00
Total		$11,085 90
Premiums paid	$5,342 00	
Improvement on grounds	800 00	
Incidental expenses during Fair	1,943 90	
Cash on hand	3,000 00	
		$11,085 90

This society would further report that more interest was felt in the success of the society than ever before manifested; that there was an improvement in nearly every department, especially in stock, both in quality and quantity. This improvement was especially noticeable in cattle.

Competition among manufacturers was more spirited, showing an increase in the number of useful manufactured articles tending to develop the resources of the country, and increasing the material wealth of the State.

The premiums offered and awarded were largely in excess of those ever before given by this society.

ARTICLES EXHIBITED.

THOROUGHBRED HORSES.

Hercules, stallion, entered by William Boots.
Sucking colt, Fred Douglass, by A. N. Story.
Unknown, by William Boots.
Peire, by Charles Murphy.
Miami, by William Boots.
Lizzie Marshall, by William Boots.
Omaha, by Charles Murphy.
Mary Watson, by C. Murphy.
Lady Jane, by J. W. Freman.
George Washington, by William Welch.
Almaden Chief, by John Cooney.
Reliance, by J. D. Waugh.
Sunbeam, by John Cooney.
Lambkin, by John Cooney.

HORSES FOR ALL PURPOSES.

Belle, entered by William Boots.
Filly, by William Boots.
Lady Belle, by John Cooney.
Maggie, by G. K. Hostetter.
May (sucking filly), by William Boots.

ROADSTERS.

George M. Patchen, Jr., entered by William A. Mathews.
Ethan Allen, by W. Hamilton.
Membrino, by J. D. Carr.
Horace Greeley, by F. S. McGirr.
Wilde Trotting, by A. D. Williams.
Amanda, by John Cooney.

DRAUGHT STALLIONS.

California Boy, three years and upward, entered by William Welch.
Barr's Dragon, by C. Barr.
Iron Duke, by W. H. Hall.
Black Sam, two years and over, by D. McCray.
Dragon, Jr., by C. Barr.
Billy (sucking), by J. P. Dudley.

DRAUGHT HORSES.

Ginney, three years and over, entered by J. P. Dudley.
Leanor, one year and over, by J. P. Dudley.

CARRIAGE HORSES.

Bob and John, entered by J. D. Carr.
Manda and mate, by William Hamilton.
George M. Patchen, Jr., by W. A. Mathews.
Ethan Allen, Jr., by William Hamilton.
Winona, by William Hamilton.
Santa Clara, by William Hamilton.

DURHAM CATTLE.

Glencoe, four years and upward, entered by Colonel Younger.
Lincoln, three years and upward, by E. Clark; entered also for sweepstakes.
Comet, two years and upward, by Colonel Younger.
Romeo, by J. D. Carr.
Butterdale, by J. D. Carr.
Dandy Jim, by Major Vernon.

AT THE HALL.

L. H. Stone. windmill.
D. McKenzie, grain sower.
McKenzie & McCole, gang plow.
D. McKenzie, harrow.
J. F. Thomas, California-made wagon.
J. F. Thomas, one-horse top buggy.
J. S. Woods, case of hats and caps.
H. Messing, lady's saddle.
H. Messing, gent's saddle.
H. Messing, buggy harness (single).
H. Messing, buggy harness (double).
H. Messing, team harness.
H. Messing, harness and saddlery work.
Empey & Leonard, buggy harness (single).
Empey & Leonard, harness and saddlery work.
Matty & Colombet, side bacon.
Matty & Colombet, hams.
Matty & Colombet, ten pounds lard.
John Stanfield, sack California wheat.
Frank Hamilton, sack California wheat.
Mrs. L. J. Watkins, tomatoes.
D. M. Harwood, native wines.
D. M. Harwood, white wines.
D. M. Harwood, Madeira wines.
D. M. Harwood, catawba wines.
Mrs. H. E. Hill, domestic wheat bread.
Mrs. L. J. Watkins, domestic wheat bread.
Mrs. L. J. Watkins, domestic corn bread.
Mrs. L. J. Watkins, domestic brown bread.
John Rock, collection of peaches.
John Rock, collection of pomegranates.
D. M. Harwood, collection foreign grapes.
D. M. Harwood, single bunch foreign grapes.
D. M. Harwood, single bunch California (or Mission) grapes.

D. M. Harwood, collection of wine grapes.
Mrs. L. J. Watkins, exhibit of canned fruit.
Mrs. L. J. Watkins, fruit in glass.
Mrs. L. J. Watkins, sweet pickles.
Mrs. L. J. Watkins, exhibit of jellies.
John Rock, collection of evergreen plants.
D. McKenzie, heavy castings, columns, and lintels.
James Hagan, plumbers' goods and wares.
James Hagan, gas chandeliers and burners.
De Long & Combs, marble work and statuary.
Mrs. Charles W. Clark, wax flowers, wax shells, and wax Autumn leaves.
Miss Carmel Munoz, cambric embroidery.
Miss Carmel Munoz, crochet work.
Miss Carmel Munoz, worsted work.
Miss Carmel Munoz, netting work.
Miss Carmel Munoz, tatting work.
Miss Rhoda Moody, cambric embroidery.
Miss Charlotte Kelly, bead work.
Miss Charlotte Kelly, crochet work.
Miss Charlotte Kelly, worsted work.
Miss Charlotte Kelly, tufted rug and button-hole work.
Miss Annie Harrigan, picture in worsted work.
Miss Annie Harrigan, alphabet in worsted work.
Miss Annie Harrigan, wax work.
Miss Annie Harrigan, feather work.
Miss Annie Harrigan, shell work.
Miss Annie Harrigan, moss work.
Miss A. L. Armstrong, moss work.
Miss A. L. Armstrong, ornamental leather work.
Miss A. L. Armstrong, hair work.
Mrs. J. L. Armstrong, knitting work.
Mrs. H. E. Hill, wax work.
Mrs. H. E. Hill, ornamental leather work.
Newport & Davis, sewing machine for all purposes.
Newport & Davis, sewing machine for fancy work.
Newport & Davis, exhibit of machine work.
H. G. Jarman, graining on wood.
Miss Sarah S. Smith, landscape painting.
Miss Sarah S. Smith, oil painting.
F. G. Sauffrignon, cocoons.
W. B. Black, pruning shears.
Empey & Leonard, improved collar.
Mrs. Rhoda Moody, silk velvet pincushion.
William G. Badger, organs.
L. Schoen, California-made cigars.
L. Schoen, fancy wood work.
L. Schoen, smokers' articles.
S. J. Taggart, sand and moss work.
S. J. Taggart, straw work.
Frank Hamilton, wild oats.
O. Johnson, grain separator.
James B. Moulin, candy.
Lizzie Whalen, worsted work.
Lizzie O'Keefe, crochet work.

C. B. Reeder, hay rigging.
C. B. Reeder, fence.
S. Tonnar, rustic work.
S. Tonnar, rustic work (shell).
S. Tonnar, miscellaneous.
Miss Dora Bascom, dressmaking.
S. Tonnar, soft-shelled almonds.
S. Tonnar, hard shelled almonds.
Mrs. J. H. Ozier, jellies.
Mrs. J. H. Ozier, preserves.
Mrs. J. H. Ozier, fruit in glass.
S. Tonnar, vegetables.
M. Stern, lady's saddle.
M. Stern, gent's saddle.
M. Stern, buggy harness (single).
M. Stern, buggy harness (double).
M. Stern, team harness.
M. Stern, harness and saddlery work.

PREMIUMS AWARDED.

LIVE STOCK.

Animals.	Names.	Exhibitors.	Premiums.
Horses—Thoroughbred.			
Three years old and upward	Ironclad	John Hall	$30
Stallion, two years old	Aleck	John Hall	$20
Stallion, one year old	No Name	John Hall	$10
Sucking colt	Captain Harris	John Hall	$10
Mares—Thoroughbred.			
Three years old and upward	Peggy Ringgold	John Hall	$20
Two years old	Lady Franklin	John Hall	$15
One year old	Mary Watson	Charles Murphy	$10
Sucking filly	Lady Washingt'n	John Hall	$10
Horses for all purposes.			
Stallion, three years old and upward	Ironclad	John Hall	$30
Stallion, two years old	Reliance	J. D. Waugh	$20
Stallion, one year old	Young Allen	Wm. Hamilton	$10
Sucking colt	Lambkin	John Cooney	$10
Mare, three years old	Peggy Ringgold	John Hall	$20
Mare, two years old	Fannie	Wm. Hamilton	$15
Mare, one year old	Belle Patchen	Geo. W. Wilson	$10
Sucking colt	Fanchon	Wm. Hamilton	$10
Roadsters.			
Stallion, four years old and upward	G. M. Patchen, Jr	Wm. A. Matthews	$30
Stallion, three years old	Membrino, Jr.	Jesse D. Carr	$20
Mare, four years old and over	Young Diamond	J. Sessions	$20
Mare, three years old and over	Titless	J. H. Ogiers	$15
Draught Stallions.			
Stallion, three years old	Capt. Thomson	T. Blake	$30
Stallion, two years old	Black Sam	D. McCrea	$20
Stallion, one year old	Horace Greeley	T. Blake	$10
Sucking colt	Fred. Douglass	A. N. Story	$10
Mare, three years old	Jennie	J. P. Dudley	$20
Mare, two years old	Mary Martin	T. Blake	$15
Mare, one year old	Leanor	J. P. Dudley	$10
Sucking colt	Dolly Varden	T. Andrews	$10
Carriage Horses.			
	Horace Greeley & Tom Bodley	Thomas Gault	$20
Stallion, with family of six or more	G. M. Patchen, Jr	Wm. A. Matthews	$50
Stallion, with family of six or more	Abdallah	Alex. Anderson	$20
Mare, with family of four or more	Winona	Wm. Hamilton	$20
Mare, with family of four or more	Rebel Daughter	Geo. W. Wilson	$15
Best mare of any breed or age	Santa Clara	Wm. Hamilton	
Double team of roadsters	Forrest and Miss Josie	C. B. Polhemus	Special.

LIVE STOCK—Continued.

Animals.	Names.	Exhibitors.	Premiums.
Mules.			
	Jude and Jenny	S. M. Overton	$10
Cattle—Durhams.			
Bull, four years old	Glencoe	C. Younger	$30
Bull, three years old	Lincoln	C. Clark	$20
Bull, two years old	Dandy Jim	Major Vernon	$15
Bull, one year old	Pacific	William Quinn	$10
Spring calf	Moonlight	C. Younger	$10
Cow, four years old	Sprightly	C. Younger	$20
Cow, three years old	Peggy 1st	C. Younger	$15
Cow, two years old	Maude	J. D. Carr	$10
Spring heifer	Gem	C. Younger	$10
Devons.			
Bull, three years old	Devonshire Billy	T. Blake	$20
Bull, two years old	Billy	B. F. Fish	$15
Sucking calf	Manda	T. Blake	$10
Alderneys.			
Bull, three years old	Brian Boroihme	John Cooney	$15
Bull, one year old	Prince John	C. B. Polhemus	$5
Cow, three years old	Princess Royal	C. B. Polhemus	$10
Cow, one year old	Princess Louise	C. P. Polhemus	$5
Holstein.			
Bull, three years old	Operdoes 12th	S. B. Emerson	$30
Cow, three years old	Operdoes 8th	S. B. Emerson	$20
Sweepstakes.			
Best bull of any breed	Planet	C. Younger	$30
Best cow of any breed	Forest Queen	C. Younger	$20
Dairy cow	Luna	William Quinn	$15
Dairy cow	Molly	J. Cooney	$10
Work Cattle.			
Yoke cattle	Buck and Brandy	A. N. Story	$15
Graded Cattle.			
Cow, three years old	Carrie	William Quinn	$20
Cow, two years old	Ellen Laine	C. Clark	$10
Cow, one year old	Frederica	William Quinn	$10
Calf	Dolly Varden	C. Clark	$10
Best herd of cattle	Glencoe	C. Younger	$50
Angora Goats.			
Best buck	Grant	J. P. Sargent	$10
Ewe, California raised	Empress	M'Cracken & Lewis	$10
Best herd of ten goats		M'Cracken & Lewis	$10

LIVE STOCK—Concluded.

Animals.	Names.	Exhibitors.	Premiums.
Sheep.			
Best buck	Gold Dust	Jewett & Saxe	$10
Best ewe	Favorite	Jewett & Saxe	$10
Best long wool buck	Pajaro	M'Cracken & Lewis	$10
Long wool ewe	Fanny	Landrum & Rogers	$10
Best medium	Frank	M'Cracken & Lewis	$10
Ewe	Mattie	M'Cracken & Lewis	$10
Sweepstakes.			
Best buck of any kind	Pajaro	M'Cracken & Lewis	$10
Best ewe of any kind	Fanny	Landrum & Rogers	$15
Swine.			
Best boar	Johnny	Robt. Thompson	$10
Best sow	Nancy Swan	A. S. Beatty	$10
Best pair of pigs	Polly and Bob	D. McCrea	$10
Poultry.			
Best pair of ducks		Geo. McCracken	

EMBROIDERY, NEEDLE WORK, ETC.

Articles.	Exhibitors.	Premiums.
Work in wax	Mrs. H. E. Hills	$2
Cambric embroidery	Mrs. W. C. Wilson	$2
Worsted work	Mrs. H. H. Curtis	$2
Tatting work	Mrs. A. L. Armstrong	$2
Bead work	Mrs. W. C. Wilson	$2
Bead work	Mrs. M. Lotz	Diploma.
Rug tufted work	Mrs. C. Kelly	$2
Feather work	Mrs. S. J. Taggart	$2
Moss work	Mrs. S. J. Taggart	$2
Ornamental leather work	Mrs. H. E. Hills	$2
Silk embroidery	Mrs. R. G. Hamilton	$2
Cambric embroidery	Mrs. C. Munoz	Diploma.
Crochet work	Mrs. C. Munoz	Diploma.
Crochet work	Miss Lizzie O'Keefe	Diploma.
Worsted work	C. Munoz	Diploma.
Worsted work	Annie Harrigan	Diploma.
Worsted work	Lizzie Whelan	Diploma.
Worsted work	Theresa Zingz	Diploma.
Worsted work	Mary Pillman	Diploma.
Worsted work	Ellen Sullivan	Diploma.
Worsted work	Agnes Sullivan	Diploma.
Netting and tatting	Miss C. Munoz	Diploma.
Silk embroidery	Mildred Seffens	Diploma.
Needle work	Lizzie Whelan	Diploma.

MANUFACTURED ARTICLES.

Articles.	Exhibitors.	Premiums.
One-horse top buggy, family carriage, two-horse top buggy, one-horse open buggy	W. T. Adel	$6
Lady's saddle	M. Stern	$
Gent's saddle	H. Messing	$
Single buggy harness	H. Messing	$1
Double buggy harness	H. Messing	$1
Team harness	M. Stern	$1
Exhibit of harness and saddles	H. Messing	$1
Windmill	L. H. Stone	$1
Grain sower, gang plow, harrow	D. McKenzie	$15 and special
Horse shoes	T. Murray	$
Gang plow	Boyce & Topham	$1
Clipper	A. E. Pomeroy	$1
Blacksmith work	W. T. Adel	$1

DOMESTIC MANUFACTURES.

Articles.	Exhibitors.	Premiums.
Hats and caps	J. S. Woods	$
Home-made quilt	Mrs. J. L. Armstrong	$
Shirt	Miss Lizzie Whalen (twelve years old)	$5 recommend'
Plain needle work	Mrs. W. C. Wilson	$
Cotton stockings, home made	Mrs. M. A. Weatherhead	$
Spring bed	J. B. Church	$

FARM PRODUCTS.

Articles.	Exhibitors.	Premiums.
Bacon	Matty & Colombet	$
Hams and lard	Joseph Delmas	$1
Wheat and barley	Frank Hamilton	$1
Tobacco and hops	C. Capeli	$1

GARDEN PRODUCTS.

Articles.	Exhibitors.	Premiums.
Tomatoes	Mrs. L. J. Watkins	$1
All kinds of vegetables	C. Capeli & Co.	$10
Squashes	C. T. Settle	$2
Cucumbers and turnips	A. King	$2

WINES AND LIQUORS.

Articles.	Exhibitors.	Premiums.
Exhibit of wines	Charles Le Franc	$15
Claret wine	Charles Le Franc	$3
Red wine	Charles Le Franc	$3
Vinegar	Charles Le Franc	$3
White wine, port wine, grape brandy	S. P. Stockton	$9
Madeira and catawba wine	D. M. Harwood	$6

DAIRY PRODUCE.

Articles.	Exhibitors.	Premiums.
Cheese	M. W. Drinkwater	$10
Butter	P. W. Reardon	$5
Wheat bread	Mrs. L. J. Watkins	$2
Pastry	R. Montgomery	$5
Brown bread	Mrs. H. E. Hills	$2
Baker's bread	C. McGettigan	$5

FRUIT.

Articles.	Exhibitors.	Premiums.
Peaches	John Rock	$5
Single bunch foreign grapes	D. M. Harwood	$3
Single bunch California grapes	S. P. Stockton	$3
Wine grapes	Charles Le Franc	$10
Apples and prunes	A. King	$10
One hundred and thirteen varieties of fruit	China Smith	
Canned Fruit.		
Five kinds	Mrs. L. J. Watkins	$10
Five kinds, in glass	Mrs. L. J. Watkins	$10
Second best	Mrs. J. Burr	
Pickles	Mrs. R. Montgomery	$3

PRESERVES AND JELLIES.

Articles.	Exhibitors.	Premiums.
Jellies	Mrs. J. H. Ozier	$5
Preserves	Mrs. R. Montgomery	$5
Dried fruit, nineteen varieties	L. A. Gould	$10
Raisins, prunes, pears, cherries, plums, currants, blackberries, apples, all dried	L. A. Gould	$22

NUTS.

Article.	Exhibitor.	Premium.
Soft and hard shelled almonds	A. King	$4

PLANTS AND FLOWERS.

Articles.	Exhibitors.	Premiums.
Hardy ornamental evergreen plants	John Rock	$25
Greenhouse plants—fuchsias, geraniums, etc., plants of all varieties, cut flowers, vase bouquets, ferns, and leaf plants	L. F. Sanderson	$72

SPECIAL PREMIUMS.

Articles.	Exhibitors.	Premiums.
Horse collar	Empey & Leonard	Special.
Parlor and vestry organs	Morton & Co	Special.
Portable fence	C. V. Reeder	Special.
Farm feed mill	M. S. Browdish	Special.
Pruning shears	W. B. Black	Hon. mention.
Silk-velvet pincushion	Mrs. R. G. Moody	Hon. mention.
California-made cigars	L. Schoen	Hon. mention.
Hand-made wood work	L. Schoen	Hon. mention.
Exhibit of smokers' articles	L. Schoen	Hon. mention.
Sand and moss work and straw work	Mrs. S. J. Taggart	Hon. mention.
Cultivated wild oats	Frank Hamilton	Hon. mention.
Grain separator	O. Johnson	Hon. mention.
Rustic work and curiosities	S. Tonnar	Hon. mention.
Elderberry wine	S. P. Stockton	Hon. mention.
Fancy box made of mineral collections	Mrs. R. G. Moody	Hon. mention.
Candy exhibit	C. Schroeder	Hon. mention.
Local publications	G. H. Hare	Hon. mention.
Hand-made marble candlestick	G. W. Ethell	Hon. mention.
Seed-flower wreath	Mrs. M. Lotz	Hon. mention.
Hair work	Dupaque & Kupper	Hon. mention.
Bird cage [For which the committee urged a special premium, as they believed it to be among the most meritorious and elegant objects of the exhibition.]	Paul Lotz	Hon. mention.
Wax and shell work	Mrs. C. W. Clark	Hon. mention.
Exhibit of carpets	L. Lion	Hon. mention.
Exhibit of home-made gloves	T. C. Aroud	Hon. mention.
Buck gloves	T. C. Aroud	$2
Cotton stockings	Mrs. Laura Gohransen	Hon. mention.
Wheat bread	Mrs. H. E. Hills	Hon. mention.
Exhibit of wines	William O'Donnell	Hon. mention.
Collection of hardy evergreen plants	William O'Donnell	Hon. mention.
Preserves and jellies	Mrs. Givens George	Hon. mention.
Exhibit of penmanship, on certificates of membership of society	Frank Ward	Hon. mention.
Marble work and statuary	J. F. McCormack	Hon. mention.
Wax work, etc	Mrs. Sue Armsbary	Hon. mention.
Grain cleaner	Brown & Bert	Special rec.
Penmanship	Mrs. Jennie Busse	Hon. mention.
Fruit	Peebles & Ballou	Hon. mention.

SPECIAL PREMIUMS FOR COOKERY.

	Exhibitors.	Premiums.
First	Miss Armstrong	$40
Second	Miss Watkins	$30
Third	Miss Givens	$20
Fourth	Miss Edward	$10
Fifth	Miss Hines	$10
Sixth	Miss Ringo	$10

MISCELLANEOUS.

Articles.	Exhibitors.	Premiums.
Castings	D. W. McKenzie	$10
Plumbers' goods, etc	James Hagan	$20
Leather, etc	J. Eberhardt	$40
Boots, shoes, etc	B. Pulverman	$28
Penmanship and pen drawing	Paul Lotz	$10
Marble work and statuary	De Long & Combs	$25
Dressmaking	Miss Eudora Bascom	$5
Ladies' bonnets, millinery, etc	Madame Loryea	$40
Graining on wood	J. G. Jarman	$10
Carriage painting	Greeninger & Young	$10
California scenery	Miss Sarah Smith	$10
Painting on cloth	Toland Hart	$10
Crayon drawing	Matilda Lotz	$5
Penciling	H. G. Peeler	$5
Photography	J. H. Heering	$45
Water-color painting	H. G. Peeler	$5
Plated ware and cutlery	A. E. Pomeroy	$10
Cocoons	F. G. Sauffrignon	$5
Sewing machine work	Wheeler & Wilson	$5 and diploma.

GENERAL REMARKS AND NOTEWORTHY EXHIBITS.

AT THE STOCK YARDS.

The crowd commenced gathering at an early hour on Tuesday, and soon the stalls were crowded with visitors, all eager to see the fine stock. At eleven o'clock, as announced, the

PARADE OF STOCK

Was called, and with pardonable pride the owners of thoroughbreds and fine grades led their stock on the track, and passed them in review before the public. There was Colonel Younger's Glencoe and Comet, Carr's Romeo and Butterdale, and Major Vernon's Dandy Jim, with fine graded and thoroughbred cows and calves, all looking their very prettiest, and apparently well aware that they were responsible for the reputation of the county.

AMONG THE HORSES

Were Boots' thoroughbred Hercules, Unknown, Lizzie Marshall, Belle, Filly, and the sucking filly May; Story's sucking colt Fred. Douglass; Murphy's Pierre, Omaha, and Mary Watson; Freeman's Lady Jane; Welch's California Boy and George Washington; Cooney's Almaden Chief, Sunbeam, Lambkin, and Lady Belle; Waugh's Reliance; Hostetter's Maggie; Matthew's Patchen; Hamilton's Ethan Allen and Ethan Allen, Jr., Winona, Santa Clara, and the carriage team Manda and mate; Carr's Membrino, and his carriage team Bob and John; McGirr's Horace Greeley; Williams' Wilde Trotting; Barr's Dragon and Dragon, Jr.; Hall's Iron Duke; McCray's Black Sam; and Dudley's Ginney, Leanor, and the sucking colt Billy.

ANGORA GOATS.

Messrs. Lewis & McCracken have the largest display of Angoras, both of thoroughbreds and grades. The breeding of these animals is fast finding favor among our farmers and stock men, and we don't think that Doc and Frank will have the field to themselves another year. In one of their stalls they have a sight worth seeing.

JOHNNY VARDEN,

So named from the brightness of its fleece, is a kid of a bright straw color, and glistens like a new twenty-dollar piece. He was not always thus, but was dyed, in order to demonstrate how perfectly the fleece takes color, and how it retains its luster through the dyeing process. The proprietors started out to make a Dolly Varden, but, not having much experience in that line, got hold of the wrong kind of a goat.

OIL PAINTING.

Of works of art of this description the display is not large but choice. We noticed in the large hall a large number of the portraits painted by Mr. Ward, whose ability is too well known to make comment necessary. In the small hall we have a choice variety of landscape paintings, by Miss Sarah Smith, giving some splendid views of Pacific coast scenery.

WAX, FEATHER, AND HAIR WORK.

Of these are several large displays of infinite variety. Among them are flowers in wax, by Mrs. Taggart, and a beautiful landscape in feather work, by the same artist, which challenges the admiration of all visitors. Mrs. McIlraich, also, has a beautiful exhibit of wax flowers. The other principal exhibitors are Mrs. H. E. Hills, wax and ornamental leather work; Miss A. L. Armstrong, hair and leather work; Miss Annie Harrigan, wax, shell, and feather work; and Mrs. Charles Clark, wax, shells, flowers, and Autumn leaves.

KNITTING, NEEDLE WORK, ETC.

Mrs. J. L. Armstrong exhibits a beautiful knitted quilt, containing one million six thousand and fifty stitches. Miss Charlotte Kelley displays some fine specimens of crochet, worsted, bead, and button-hole work. Miss Laura Gohrenson shows a marvelous skill in crochet and needle work. Miss Carmel Munoz shows herself a useful member of society by a display of cambric embroidery, crochet, netting, tatting, and worsted work. Miss Rhoda Moody's display of cambric embroidery is very fine. Miss Lizzie Whalen and Miss Lizzie O'Keefe may well be proud of their skill in crochet and worsted work. There are many other articles of this nature on exhibition, but the owners not being present we could obtain no particulars. There is enough, however, to show that "we have needlewomen among us."

PIANOS, ORGANS, ETC.

Messrs. Morton & Co. have the only exhibition of musical instruments. These consist of Hallet, Davis & Co.'s square and grand square pianos, and George Woods & Co.'s organs. These instruments deservedly attract much attention, both on account of tone and beauty of finish. One piano particularly, finished in ebony and gilt, is a most beautiful specimen. The display of organs consists of a large instrument, double-banked, and with sixteen stops, and a smaller parlor or vestry organ, with single row of keys and ten stops. These are beautiful instruments, and, for tone, are not to be excelled.

FRUITS, VEGETABLES, ETC.

The display of fruit is excellent. Mr. Sauffrignon exhibits ten varieties of choice peaches. C. T. Settle has a large and choice display of many varieties of pears, apples, etc. China Smith, also, has a magnificent assortment of fruit, consisting of many choice varieties. William O'Donnell exhibits eighteen varieties of pears and sixteen varieties of apples, all of the choicest kinds. He also has a fine display of cider, wine, and brandy. Cary Peebles is on hand with some enormous tomatoes and some choice fruits. D. M. Harwood, of the Lone Hill Vineyard, treats the public to a splendid display of wine and wine grapes. Mr. Ballou has a display of plums, prunes, etc., which cannot be beaten anywhere. Mr. Tonner has a fine exhibit of vegetables, among which are some enormous squashes, beets, beans, etc. Frank Hamilton shows specimens of improved wild oats and a sack of wheat to the public. There are also many varieties of canned fruits, jellies, etc., exhibited respectively by Mrs. Watkins and Mrs. Captain West, of Santa Clara. Mr. King has a fine display of fruits, almonds, etc. John Rock has also a good display of peaches, pomegranates, etc.

PLANTS, FLOWERS, ETC.

We have a large collection of these articles on exhibition. Mr. William O'Donnell has a pyramid, near the entrance of the hall, composed of over one hundred varieties of hardy out-door shrubs and plants. The base is surrounded by a beautiful floral wreath of cut flowers. Mr. Sanderson's large exhibit of ferns and plants are displayed on a large table near by, and do that eminent florist much honor. In the room cut off from the south end of the corridor will be found Mr. John Rock's exhibit of plants, shrubs, evergreens, etc.

SEWING MACHINES.

As is usual at our Fairs, the sewing machine men are out in force. The companies represented are the Florence, Singer, Wheeler & Wilson, Wilson, American Button Hole and Over-seaming Machine, Home Shuttle, Elliptic, and the Suplee Needle Company. They have all fine specimens of their respective machines on exhibition, and the Wheeler & Wilson displays a fine lot of machine work.

HARNESS AND SADDLERY, ETC.

The chief exhibitors of this industry are Messrs. Messing, Ashton, Stern, Empsey, and Leonard, all of whom have fine specimens of work. Mr. Eberhardt, of Santa Clara, gives a good display of California-made leather, embracing many varieties.

BACON, HAMS, ETC.

The only exhibitors in this department are Matty & Columbet, but the display is large, well selected, and embraces almost everything in the pork manufacturing line. While so many are engaged in this business we wonder that more do not compete for the premiums offered.

MECHANICAL DEPARTMENT.

There were but few articles brought in for exhibition in this class, but what there are are well worthy of inspection. The principal articles are five buggies, single and double, by W. T. Adel, painted by Greeninger & Young; a seed sower and harrow, by D. McKenzie; a grain separator, by O. Johnson; and a grain stacker, invented by Mr. Tuers, and entered by W. T. Adel, the manufacturer.

PHOTOGRAPHY.

Mr. J. H. Heering has the only display in this department. His exhibition consists of all the different varieties of photographs, both large and small, retouched pictures and all other articles pertaining to his art.

SCULPTURE AND MARBLE WORK.

By hard work, Messrs. DeLong & Combs managed to get up a fine display in this line.

PLUMBING AND GAS FITTING.

At the right hand of the east passage leading from the large to the small hall, Mr. James Hagan has set up a display of plumbing and gas fitting materials and chandeliers. His chandeliers are of all patterns.

MISCELLANEOUS ARTICLES.

The entries under this head are numerous. Among them we notice several specimens of graining on wood, by Mr. Jarman. Mr. E. C. E. Vile, of Santa Clara, exhibits a rein-holder, which is a novel and useful invention. Messrs. Morton & Co. display a large collection of chromos, among which are many of Prang's best, which excite universal admiration. Messrs. Gates & Rhodes, and Messrs. Williams & Moore, have both a fine display of perfumery and toilet articles, the latter, in addition, exhibiting specimens of Fink's Magic Oil, and the great H. H. H. A. E. Pomeroy shows the public what he can do in the way of chinaware, queensware, and house-furnishing goods, and if a person can eat out of such dishes as he displays, it really makes but little difference what is in them. Schoen, with his display of tobacco, cigars, and smokers' materials and fancy wood work, keeps a crowd of admiring spectators around his stand. Tamar's rustic work and curiosities attract much attention. Vinsonhaler is on hand with his college bank, and is one of the institutions of the exhibition. Reeder's patent fence and hay rack is a good thing. Aroud's gloves show what talent there is in buckskin, and people can see what they have lost by his not taking up his residence here sooner. Pulverman has a fine display of boots and shoes, principally ladies' wear. George Hare shows the people his inimitable maps of the city and vicinity, together with specimens of stationery with lithographic local heads. L. Lion occupies the entire southwest corner room of the building with his display of carpets, rugs, curtains, etc., and here ladies linger with delight at the beautiful texture, variety of design, and delicacy of fabric of the articles on exhibition.

The society's prospects of usefulness and success were never brighter than now, nor the results of the last annual Exhibition never apparently more satisfactory to this community.

All of which is respectfully submitted.

GIVENS GEORGE,
Secretary of the Santa Clara Valley Agricultural Society.

RESOURCES OF SANTA CLARA VALLEY.

BY J. J. OWEN.

There are so many Eastern people now seeking information concerning this country, with a view to making their future homes on this coast, that we here propose to furnish, in concise and epistolary form, an answer to the ever-recurring questions concerning the Santa Clara Valley, its soil, resources, climate, etc., with such other information as the distant reader will most likely be interested in.

The Santa Clara Valley is justly considered the garden valley of the Pacific coast. Embracing the southern arm of San Francisco Bay, and extending southward a distance of sixty miles, ranging in width from three to twenty miles, and running parallel with the seaboard, it lies embosomed in the Coast Range of mountains—a vale of surpassing beauty and fertility. The range of mountains on the west shuts out in a great measure the cold winds and fogs of the Pacific Summers, enough of which, however, reach it to modify the excessive heat of the interior, thus giving it a mild and equable temperature throughout the year. The heat of Summer is seldom excessive, and then only at short periods and long intervals; and an occasional light frost marks the severity of Winter.

The southern arm of the San Francisco Bay is forty miles in length, and from three to eight miles in width. It is navigable for vessels of the largest draught. Its shores are bordered by a belt of low lands, known as salt-marsh, from one to two or three miles in width. Adjoining this belt, and reaching back to the hills and beyond, is a region of country of remarkable fertility, susceptible of the highest degree of cultivation. Here grow in perfection all of the cereals—excepting corn—the semi-tropical as well as northern fruits, and vegetables of all kinds, in wonderful abundance and perfection.

The Santa Clara Valley proper laps around the southern extremity of this bay, and extends southward to the Pajaro River, through what was once doubtless an extension of the bay, or an arm of the sea, which at some remote period separated the western or Santa Cruz range of mountains from the main land. On the eastern side the hills are gently sloping and rolling, rising to an altitude of about two thousand feet, arable and remarkably fertile to their summits. They separate the Santa Clara from the San Joaquin Valley, and are from thirty to fifty miles in breadth. The western hills are more broken and rugged, seamed with deep ravines, and their precipitous bluffs crowned with chaparral. They extend to the coast, and are nearly of the same breadth as those on the east. There are, however, amid the latter, many little valleys and stretches of table land, cosy little nooks, and surprises of the most delightful scenery. Wherever these hills are susceptible of cultivation the soil is found to be exceedingly productive, and especially adapted to the grape, as well as fruits of nearly all kinds. Not only in the hills but throughout the valley, the peach, nectarine, prune, apricot, and plum, and also the larger fruits, grow in absolute perfection.

The soil of the valley is varied—in some places a rich adobe, many feet in depth; in others, a gravelly loam; in others still, a reddish loam and clay, mixed with decomposed rock. The latter is regarded as the natural soil for the grape, the choicest and tenderest foreign varieties of which here grow in perfection. This grape belt stretches for many miles along the western foothills, and is from two to five miles in width. The country, in its native state, was covered with scrub oak, with scattering white and live oaks, and occasional patches of chaparral. It is now mostly subdued and brought under cultivation, producing fine wheat and barley. There are several large vineyards in this belt, whence are produced large quantities of excellent grapes and wine. It is known as the Foothills Wine District.

The country around the bay, and in fact generally throughout the valley, is rapidly settling up, by the division of the original large tracts and grants of land, into small farms.

Wheat and barley are the staple productions, although in the vicinity of San José and Santa Clara, and thence northward to the head of the bay—a distance of from seven to eight miles—much attention is paid to orcharding, to vegetable gardening, and to the cultivation of strawberries and other small fruits, for the sale of which the producer finds in San Francisco an excellent market. The facility for irrigation afforded by the numerous flowing wells of this section (of which we shall speak hereafter) gives the gardener superior advantages in these matters; hence, in the culture of strawberries especially, he has acquired a monopoly of the business, shipping, in the season, from thirty to fifty tons of berries a day.

There is an abundance of timber in the mountains for fencing and building purposes, while the scattering oak and cottonwood of the valley will afford fuel for many years to come. Besides, forest culture, as a systematic industry, will soon add to the sources of supply. Live oak fuel is worth, in this market, from six to nine dollars a cord, and lumber from twenty-five to thirty-five dollars per thousand feet, according to quality.

The population of Santa Clara County, according to the last census was twenty-six thousand two hundred and forty-six, over two thirds of which number are gathered together in the towns and villages. The county is some fifty-three miles in length, and from twenty to thirty miles in width, including the entire valley, and extending to the summits of the mountains on either side. About three fourths of the territory is mountainous, and sparsely settled. These mountain lands are valued at from three to forty dollars an acre, the latter figure covering the best improved farms. They afford excellent stock ranges, and wherever brought under cultivation are found to be reliable and very productive. They are especially adapted to the culture of the vine They are watered by numerous springs and streams which, flowing into the valley, sink into the underlying gravel, furnishing the sources of the flowing wells in the lower portion of the valley.

There are a number of large ranches in the valley, ranging from one thousand to twenty thousand acres. These tracts are partially occupied by tenants, but are mainly in a state of nature, and used as ranges fo cattle. Some of these lands are now in the market; and the system o assessing them at their actual value, just introduced, will soon induce the subdivision and sale of others, as the owners will find it too unprofit able to permit their lands longer to remain idle. The prices ruling for valley lands vary, of course, with quality and location. Choice vegetable and fruit lands, located within from one to three miles of San José, are worth all the way from one hundred to four hundred dollars per acre; while good grain lands, from three to six or eight miles distant, can be bought for thirty to seventy-five dollars an acre.

OUR RIVER SYSTEM.

The river system of this valley next claims our attention. From the head of the bay south, the ascent of the land is about ten feet to each mile, affording ample drainage for the surplus water of the rainy season. The Coyote is the principal river, although this is hardly worthy of the name of river, except at times, when swollen with the Winter rains. It rises in the eastern range of hills, and, uniting with several smaller streams, flows southward some twelve or fifteen miles, where it breaks through the hills, about twenty miles south of San José, then turns to the north and flows down through the valley, past and to the east of the City of San José, and on into the bay. In the Summer this stream is nearly dry, except where it leaves the hills. Through portions of the valley the banks are sharp and precipitous; in other places the river bed is broad and irregular. The Guadalupe River rises in the western hills, about fifteen miles distant from the city, seeks the center of the valley, and flows past the western boundary of the city, where it forms a junction with the Los Gatos, and thence on to the bay. The Los Gatos takes its rise in the same range of hills, further to the north, and enters the valley through what is known as the Santa Cruz Gap, flowing past the enterprising manufacturing town of Los Gatos, at the foothills, ten miles distant from San José, and furnishing water-power for the Los Gatos Woolen and Flouring Mills. It is also the source whence the San José Water Company derive their supply of water for San José and Santa Clara. Several small streams flow into the valley at different points, their waters sinking into the gravel as they reach the plain. Among these are the Penitencia, the Llagas, Almaden Creek, Smith's Creek, etc. The watershed of the valley is far less extensive than that of many of the interior valleys of the State; hence, although the streams rise rapidly during the heavy storms that sometimes occur, becoming wild, resistless, and destructive torrents, yet they usually fall as rapidly, lasting but a few hours.

OUR TOWNS.

Santa Clara Valley has its share of towns and villages, the largest of which is San José, the county seat. This city contains a present population of about twelve thousand inhabitants. It is situated on a gently rising plateau between the Coyote and Guadalupe Rivers, the main portion of the city being some ten feet above the highest flood waters; is about midway of the valley, eight miles from the tide waters of the bay, and fifty miles nearly due south from San Francisco. The city is beautifully laid out, with broad and neatly graded streets, and contains many elegant public and private buildings.

Three miles distant, and connected with San José by a horse railroad running through the far-famed Alameda—one of the most delightful shaded drives on the continent—is the beautiful Town of Santa Clara, the seat of Santa Clara College. The town has a population of about two thousand five hundred. The streets are broad and well shaded. There are many elegant private residences, and fine orchards and gardens; several churches and good business blocks, and the people are noted for their intelligence, good order, and thrift.

Twelve miles north of San José is the little village of Mountain View, of a few hundred inhabitants; and six miles further to the north is Mayfield, a place of considerable importance, and growing rapidly. These villages are all on the line of the railroad from San Francisco, and surrounded by a thickly settled farming country.

At the head of the bay, and without railroad advantages, is the village of Alviso. Here are several large storehouses for grain, and a large steam flouring mill. An extensive freighting business, of grain and other produce, is done by schooners between this point and San Francisco.

A few miles to the east of Alviso, on the line of the Western Pacific Railroad, which connects San José with Stockton and Sacramento, is the little village of Milpitas.

About twelve miles west of San José is the village of Saratoga, noted for its excellent mineral springs, its paper mills, and as being a place of popular resort. The scenery here is wild and romantic, and the place is assuming considerable importance.

Following up the range of hills, we next come to Los Gatos, heretofore mentioned. It is a charming little manufacturing town, and is fast filling up with an industrious population.

Three miles from Los Gatos, back in the heart of the hills, is Lexington, a Santa Cruz stage station. The place has a good hotel, a store, and several shops. The road thither is through the Santa Cruz Gap, a deep ravine, through which flows the Los Gatos Creek. The road winds along the side of the mountain, at times skirting the margin of frightful precipices, and is wildly, grandly picturesque.

A few miles further up the range from Los Gatos is The Hacienda, or mining town of New Almaden—a little gem of a place, situated in a deep gorge of the mountain. Here are located the reduction works of the world-famed quicksilver mines. The place is also noted for its springs of Vichy Water, which constitutes quite an important article of commerce.

Near the southern boundary of the county, thirty miles from San José, on the line of the Southern Pacific Railroad, is located the flourishing City of Gilroy—a place of nearly three thousand inhabitants. For many years Gilroy was an unimportant village, until the completion of the railroad to this point, when it sprung up as if by magic, and shortly assumed a position in the county second only to that of San José. It is situated in the heart of a magnificent farming country, and possesses all the elements of growth and permanent prosperity.

OUR RAILROADS.

Santa Clara County has about seventy miles of railroad in operation. The main trunk, or first link in the Southern Pacific Railroad system, enters the county from San Francisco, on the west side of the bay, and runs through the heart of the valley for its entire length, terminating, at present, about fifteen miles beyond, at the Town of Hollister, in Monterey County. A branch road connects with this line a few miles below Gilroy, and runs to Watsonville, the principal town in Pajaro Valley, in the same county, and located a few miles from the seaboard. At San José the Western Pacific road intersects with the Southern road, and running northward and to the east of the bay, connects at Vallejo Mills with the road from Oakland to Sacramento. Thus our railroad system consists of a grand trunk through the valley, diverging near each end of the county into two lines. Three daily passenger trains are run each way, between San Francisco and San José, over the road on the west side of the bay, and one on the east side. The latter road, terminating at Oakland, connects with San Francisco by ferry. These roads, in point of construction and efficiency of management, are equal to any in the United States.

Of the railroad projects in contemplation we may mention that of a narrow gauge road to connect San José and Santa Clara with Alviso, thence to connect with a line of steamers for San Francisco. This project is entirely feasible. It is in the hands of a company of competent men organized to carry it through, and we regard the completion of the work as one of the accomplished facts of the immediate future. Another project is that of a narrow gauge road from San José to Santa Cruz, through the Santa Cruz Gap. This road has been surveyed and found to be entirely practicable; and although it "hangs fire" at present, we doubt not it will be constructed at no distant day. It would open an extensive lumber region, valuable quarries of lime, etc., besides passing through much excellent farming country.

ARTESIAN WELLS.

We now approach the consideration of perhaps the most interesting feature of this beautiful valley—the flowing wells. We have hitherto stated that this valley was once evidently an arm of the sea. By the wearing away of the mountains, through countless ages of storms, assisted, perhaps, by the upheaval of earthquakes, it has gradually assumed its present appearance. This is evident from the fact that the rtesian auger frequently penetrates logs of wood imbedded in the substrata of clay and gravel, hundreds of feet below the level of the sea.

Although excellent water is found wherever a lower stratum of gravel is penetrated—and in the lower portion of the valley the first stratum, sometimes reached a few feet from the surface, usually contains an abundance of water—yet flowing water is only found within certain limits. These wells may be obtained in the country around the head of the bay, and extending southward to and including the City of San José—a region of country ten or twelve miles in length by from three to six in width—and also in the southern portion of the county, extending from Gilroy southward a long distance. There is not an acre of this region that cannot be irrigated, through our long and rainless Summers, by these subterranean reservoirs. The streams flowing down from the mountains sink into the gravel, where the water is held in reserve by the overlying strata of clay. The nearer we approach the sea level the greater is the force and volume of water from these wells. It is no uncommon occurrence for the water to rush through the pipes with such force as to throw up rocks of a pound weight from a depth of two hundred feet or more.

There are hundreds of these artesian wells in and to the north of San José. In fact, so greatly has the number increased during the last few

years, and so reckless has been the waste of water, in the absence of proper regulations restraining their flow, that the effect is telling disastrously upon the higher portion of the valley—in draining it of its moisture, and in exhausting many wells that once yielded an abundance of water.

In early times, when these wells were confined mainly to San José, a project was inaugurated to gather up the water into a mill-race, for the purpose of propelling machinery. We believe a mill was erected near the Coyote for this purpose, but the enterprise was found to be impracticable, and was abandoned.

In San José flowing water is found at a depth varying from fifty to three hundred feet. For domestic uses many wells are only sunk into the first stratum of gravel, the water rising to within a few feet of the surface. These are called surface wells.

To prevent the useless waste of water, as now generally permitted, some stringent legislation is necessary. The wells must be securely capped and the water used only when needed. They are the pride and beauty of the valley, and should be protected and preserved as a lasting source of usefulness and wealth.

SAN JOSÉ.

This city ranks third in the State in point of population, if we are permitted to include the thickly settled territory immediately adjacent to its charter limits. It ranks first in point of beauty of location, general neatness, educational advantages, and salubrity of climate.

According to "Hall's History of San José," the ancient or former site of the City of San José was about a mile and a quarter north of the center of the present city; but on account of the low grounds in that section the archives were removed to the present site. This occurred in the year seventeen hundred and ninety-seven. For three quarters of a century the pueblo consisted of little else than a small cluster of adobe houses, intensely Mexican in their construction, together with a church constructed of the same crude material. It was not until the discovery of gold, and California began to receive a large influx of population from abroad, that the town began to assume a position of any considerable importance.

San José was designated as the first Capital of California, and the Legislature held its first session here, in the Winter of eighteen hundred and forty-nine and eighteen hundred and fifty—the memorable Legislature of "a thousand drinks." It assembled here again the following Winter, and soon after, accepting a glittering offer from General Vallejo, removed to the Town of Vallejo, then a village of shanties, with one larger than the rest for the State Capitol. Not satisfied with its new quarters, it soon after packed up the archives and removed to Benicia. Here it remained for a short time, when it again resumed its travels, departing for Sacramento, where it now remains. This was known as "the Legislature on wheels."

The removal of the Capital was a serious blow to the prosperity of the place. The prospects of the people were at first clouded, and their ardor quenched. Property in town lots was a drug, and the future of the city seemed anything but hopeful. About the commencement of the last decade the place began to exhibit signs of permanent improvement, since which time its advancement in growth and prosperity has been as rapid as it has been substantial.

Located about midway of the valley, surrounded by an agricultural country of remarkable fertility, convenient to San Francisco, and with a climate unsurpassed in healthfulness and salubrity by that of any other city in the world, San José has a future before her of magnitude and wealth second in the State only to that of San Francisco.

The main portion of the city is located between the Coyote and Guadalupe Rivers, which at this point are one and one half miles apart; but the suburbs extend for some distance beyond on either side, and are rapidly reaching out in all directions. Several new homestead enterprises were inaugurated a few years ago, which met with favor, and afforded cheap homes to many people of moderate means.

There are in the city something over thirty miles of nicely-graded streets—nearly all the grading of which has been done during the last half dozen years. The town is well laid out, the streets wide and many of them nicely shaded; and there is an air of thrift about the place that strikes all new-comers favorably. The city is lighted with gas, is well watered, both by artesian wells and a system of public water works; is provided with three public parks in the city—Market of two, St. James of eight, and Washington of thirty acres respectively; and one park of several hundred acres located in the Penitencia Cañon, a few miles to the east of the city. It has an excellent Fire Department, with good buildings for fire steamers, and other appliances for extinguishing fires.

The public buildings of San José are especially worthy of mention. The Court House is a massive structure, of the Corinthian order of architecture, costing about two hundred thousand dollars. From its dome may be had a grand view of the city and valley, with the bay in the distance. From this altitude the country spreads out before the eye like a beautiful map, checkered with orchards and fields, and quiet country homes. It is a favorite resort for sight-seers. Adjoining the Court House is a jail—the best in the State—constructed last year at a cost of eighty thousand dollars. The State Normal School building, now nearly completed, is located in the center of Washington Square. Its cost will be about two hundred thousand dollars, and is one of the most imposing structures in the State. The City Hall building, once notable as a Town Hall and Court House, is now used for city offices and a place of meeting for the Common Council. The two principal public school buildings are fine, imposing structures—one erected at a cost of twenty-five thousand dollars, the other fourteen thousand dollars. There are five other public school buildings of lesser pretensions, for primary and intermediate grades. In addition to this, there is the Academy of Notre Dame, a boarding and day school for young ladies, under the auspices of the Catholic Sisters. This school is centrally located, occupying some twelve acres of ground, and, with buildings and improvements, valued at about a half million of dollars. It is patronized by the wealthy classes of all parts of the State. Next comes the San José Institute and Commercial College, a mixed boarding and day school, with fine buildings and grounds, and an admirable corps of instructors. Two miles distant, on the University Grounds, is located the University of the Pacific, a stately structure, recently erected at a cost, we believe, of about sixty thousand dollars. This school was formerly located in Santa Clara, but moved into the new building last Summer. It is under the auspices of the M. E. Church. Connected with it is a seminary for young ladies. Three miles distant, at Santa Clara, is located the Santa Clara College, under the management of the Jesuit Fathers. This college occupies a number of elegant buildings, in an inclosure of some twelve acres, in the heart of the beautiful Town of Santa Clara. Its possessions are but little, if any, less valuable than those of the Sisters of Notre Dame, of this city. It is known throughout the coast as a first-class educational institution.

The churches of San José, in point of number and completeness, will compare favorably with those of many larger cities. The largest and most expensive church is that of the Catholics, not yet fully completed according to the original design. It is constructed in the form of a cross, the main trunk of which incloses the old, long, and narrow adobe church erected many years ago by the Mission fathers. A second Catholic church is in process of construction in another portion of the city. The Presbyterians, Methodists, Episcopalians, and German Methodists have each ample and elegant church edifices—all erected within the last few years. The South Methodists, Baptists, and Friends are provided with good but less showy churches. There is a new and elegant synagogue for the Hebrew worshipers. The colored people have a small chapel of their own. The Unitarian Society hold their meetings in one of the public halls. Santa Clara and Gilroy are also provided with ample church accommodations; besides, several churches are scattered about the valley.

In the matter of places for promiscuous public assemblage, San José is provided with a fine theater, known as the Opera House; Music Hall, one of the most elegant and commodious halls in the State; and two or three smaller places, of less note. Two new market houses are in process of construction—one three hundred feet long by sixty feet in width, the cost of which will exceed forty thousand dollars; and the other of lesser dimensions. These buildings will each have immense halls in their second stories, suitable for fairs, or extra large gatherings of the people. The Turn Verein and Germania Club have each fine halls for the use of their respective societies.

Among the accessions to the population of this valley, during the last few years, have been many persons of wealth and culture—from the mining portions of the State, from Nevada, and some from the Atlantic States—who have come here to establish permanent homes, where they can enjoy this incomparable climate and the advantages of excellent schools and enlightened society. The result is many magnificent private residences, surrounded and adorned with every arrangement that a cultivated taste and an enlightened love for the beautiful can suggest. Many old citizens, too, who have grown up with the town, have made themselves homes here as beautiful as they are elegant.

Of the latter, first in point of magnitude and elegance is the princely estate of General H. M. Naglee, located near the Coyote, in the eastern part of the city. The General's grounds, which are devoted to a private park, residence, brandy distillery, model vineyard, etc., embraces an area of about one hundred and forty acres. The grounds are ornamented with elegant statuary, artesian fountains, beautiful shaded drives, and rare plants and flowers.

Next among the older private residences is that of Mrs. S. J. Hensley, on First street, in the northern portion of the city. This beautiful private park contains twenty-five acres. Mrs. Hensley lost her fine family dwelling house about a year ago, by fire, and now occupies a pleasant little cottage located on another part of the estate; but the grounds, which are kept with scrupulous neatness, are among the most noted and attractive features of San José.

Near Mrs. Hensley's is the palatial residence of Josiah Belden, an old pioneer, and a gentleman of large wealth. His grounds, some twenty-five acres in extent, are ornamented with stately shade trees, fine drives and walks, rare flowers and plants, etc. The family mansion, located near the center of the park, is substantial and commodious.

The most expensive dwelling-house in the city is that of Mr. Clark, on Santa Clara street, at the corner of Eighth, recently erected at a cost of over fifty thousand dollars. An unimposing structure outwardly, its interior arrangements are most elaborate and artistic.

Another elegant residence is that of Mrs. Hill, on the Alameda, constructed a year ago at a cost of over thirty thousand dollars. The building is a fine specimen of ornamental architecture. It is located in the midst of beautiful surroundings.

T. Ellard Beans, one of our substantial bankers, has a beautiful place on First street, near the railroad. His grounds are newly improved, and are arranged with fine taste.

Jackson Lewis, on Santa Clara street, has a delightful residence. His grounds contain the finest conservatory in the valley.

Mr. Mason, near Market Square, has a new and elegant residence.

Among other luxurious places we may mention those of Judge Davis Divine, Hon. S. O. Houghton, Mrs. Allen, J. H. Fickinger, China Smith, J. R. Whitney, Daniel Murphy, William P. Dougherty, E. McLaughlin, T. W. Spring, Judge Denny, Doctor Strong, Doctor Ben. Cory, N. Hayes, S. A. Bishop, Hon. A. L. Rhodes, C. H. Maddox, C. W. Pomeroy, and many others.

CLIMATE.

It is difficult to give any written description of this climate that will convey a clear idea of the same to the stranger, especially to one familiar only with the climate of the Northern States of the Atlantic side of the continent. Notwithstanding all that has been written and published on this subject, the almost universal opinion of the stranger visitor is that "the half had not been told him." The difficulty in the way of making a lucid statement of the facts in the case consists in this, that the climate of California varies with almost every locality, preserving but one feature that is in any general sense uniform—wet Winters and dry Summers. In the Sierra Nevada Mountains snow falls in Winter, frequently to a great depth, and upon the mountains of the Coast Range, also, in small quantities; but none in the principal valleys. The Winters along the seaboard, and wherever the country approaches the sea level, are warm and pleasant, with alternate showers and sunshine—something like a New England April, without its extremes. In the Summer the cold northern trade winds sweep the coast regularly each day, commencing at about ten o'clock in the morning and continuing till sunset, with cool and cloudless nights and the most delightful mornings imaginable. In the remote valleys, beyond the reach of the trades, the Summer heat is very intense at times, and the air dry. In the coast valleys, like those of Santa Clara, Napa, and some other smaller valleys, where the winds are broken by intervening ranges of mountains, the Summers are mild and salubrious—neither too hot nor too cold.

But a description of the climate of this valley claims our especial attention. Beginning with the Winter or rainy season, which usually sets in in December, although occasional showers occur before that time, the season of vegetable growth commences. The Summer winds

have ceased, except those that blow from the south, bringing with them the welcome rain. This season is not, as many suppose, a season of almost continuous rain, but of showers, and sometimes several days of rain together, followed by weeks of pleasant weather, during which the farmer tills and seeds his land. The roads become firm and smooth, and the country begins to assume its best appearance. Excessive rains, however, sometimes occur, when for a time the roads become almost impassable. The heavy rains are over by March, with occasional showers as late as May, when the verdure attains its perfection of growth, and the country is looking its loveliest. No snow falls in the valley, but it may frequently be seen upon the distant hills, where it remains, however, only a few days at most. Frosts sometimes occur severe enough to destroy the more tender plants, but not to interfere with the growth of grasses and many kinds of vegetation. The grasses are all annuals, excepting a coarse variety of clover, lately introduced, and known as alfalfa. This clover is immensely rooted, the roots sometimes extending into the earth a depth of ten to fifteen feet—a hard, woody fiber, an inch in diameter. It retains its verdure throughout the year, and affords excellent pasturage for cattle. Roses remain in foliage all Winter, blossoming in sheltered places throughout the season, and many kinds of evergreen shrubs and trees, unknown to the Eastern climate, give a cheerful appearance to the landscape. The apple, pear, peach, plum, and other varieties of fruit trees, shed their leaves as in the East.

But now comes the season of harvesting, which our farmers perform at their leisure, leaving their stacks unprotected, and their grain piled up in sacks in the open field, for weeks and months together. No rain ever comes to disturb their labors. It is the finest harvest weather imaginable. The days are uniformly cool, with rare exceptions, enabling man and horse to accomplish the largest amount of work with the least fatigue. During the forenoon a good breeze springs up from the north, blowing steadily till night; but, unlike the cold winds of the seaboard, it is tempered to a genial mildness by the fervid rays of the sun. From May until October the sky is usually cloudless, save with an occasional fog bank hovering over the valley in the early morning, which is soon dispelled by the sun. There is very little dew; vegetation dries up; the fields become sere and brown, the roads exceedingly dusty, and a universal drought prevails. The grasses, though dry, retain their nutriment, and the cattle thrive thereon, until the Winter rains again bring forward a new growth.

These long dry Summers are really the perfection of this climate. The dry, cool atmosphere is a sure protection against malaria, hence fevers are almost unknown; and the nights are positively grand. Invariably cool enough to require thick covering, sleep becomes a luxury rarely enjoyed by the Summer resident of other lands. It is this peculiarity of climate that gives such perfection to our cereals, such luster and lusciousness to our Summer fruits.

Then comes the hazy Autumn days. The trade winds have ceased. The atmosphere grows thick with gathering moisture. The changing currents whirl the dust and leaves into weird columns. The south wind settles down to its work, and the drama of the seasons is repeated.

EARTHQUAKES.

There is a sort of nameless terror about an earthquake to those who have never experienced one, and to many who have the sensation is anything but pleasant. But they are trifles, as compared with the terrible thunder storms and hurricanes that prevail on the other side. Hundreds of people are killed by lightning there to every one that loses his life by earthquakes here. The thunder storms and tornadoes have this advantage, however, they send their warning signals of gathering, skurrying cloud ahead, to prepare people for the dire disaster which may soon follow. The earthquake steals upon one when he least expects it. A sudden jarring of the earth, with, perhaps, a deep rumbling noise, followed by a quick, oscillating motion, which dies away in a gentle, tremulous vibration, and all is quiet. The shock seldom lasts longer than eight or ten seconds. Many months, sometimes, intervene between these earth shocks, and then again we have known several to occur in a single day.

The heaviest shock, in this valley, of which we have any recollection, occurred about four years ago, when some brick buildings in San José were more or less injured—firewalls and chimneys were thrown down, plastering cracked, etc. This shock extended for several hundred miles along the coast, causing considerable damage to property in San Francisco and other places. It taught architects the necessity of improving their methods of building, by bracing and strengthening their walls in a more secure manner. In the construction of chimneys, also, galvanized iron has been substituted largely for brick. Wooden buildings are considered earthquake proof. They are seldom damaged to any appreciable extent by the shocks.

There are various theories concerning the cause of these disturbances, which, at present, however, are mainly speculative. It is possible that scientific research may eventually fathom the trouble, if not provide a remedy. The electric theory has many advocates. In other countries the equilibrium of the upper air currents of electricity and those of the earth is established and brought about through the medium of cloud conductors, as witnessed in the lightning's flash, followed by the thunder-peal. Here there are no cloud conductors during the Summer months. The earth, it is supposed, becomes overcharged with electricity, which seeks an equilibrium with the upper currents; hence the disturbance. This theory is strengthened by the fact that earthquakes usually occur in the Fall of the year, when the clouds begin to gather and the air becomes filled with moisture. "Good earthquake weather" is what old residents designate a warm, cloudy day, preceding the Winter rains. The "internal fire" theory, also, has its advocates. But whatever may be the cause, we much prefer an occasional earthquake to the frequent electrical disturbances that cause so much disaster to life and destruction of property in the Atlantic States.

THE WARM BELT.

A few years ago the writer, while visiting the mountains in the vicinity of Lexington, late in the Fall of the year, observed a vineyard on the mountain side, in the lower portion of which the leaves were sered and blighted with the frosts, while the vines further up the hill were still fresh and green. Upon inquiring into the matter he found that such was a common occurrence—that the frosts seldom affected the upper portion of the vineyard. Other portions of the mountains were examined, on both sides of the valley, and from comparing notes with the settlers in these localities, it was ascertained that there was a belt of country lying upon the mountain sides that was almost entirely exempt from frost. This belt commences at an altitude of about four hundred feet above the level of the valley, and extends to an altitude of about twelve hundred feet—including a belt of country upon the mountain sides of from one to three miles in width, and stretching along the whole length of the valley. It is so distinctly defined that residents of the mountains, in riding up from the valley in the night-time, when the air is still, can tell within a few rods of where they will enter the warmer currents.

The section is known to all old residents as the "warm belt." The explanation of this singular feature is supposed to consist in this: The warm air of the valley, rising at night along the mountain sides, meets the currents flowing in over the mountains, and is formed into an eddy, which hugs the land and wards off the colder temperature. In this region, frost is rarely known to occur. We have seen potatoes harvested in March, in this belt, that grew and ripened in the open air during the preceding months. Oranges, too, as fine as any of the best tropical production, are grown in the same belt, as yet upon a small scale, but indicative of what can be accomplished.

It must be borne in mind that these hills are yet almost in a state of nature. They are sparsely settled, and but few improvements have yet been made, the settler preferring the valley lands at a much greater cost. At the same time, the hills offer attractions and advantages for country homes that cannot be found in the valley. The lands are cheap and the titles generally unquestionable. Their immunity from frosts will undoubtedly be taken advantage of, at no distant day, in the cultivation of the orange, lemon, and many tropical fruits not entirely indigenous to the valleys. This region is also especially adapted to the cultivation of the English walnut, pecan nut, almond, etc., and possesses the natural soil and climate for the olive, the raisin grape, and fig.

POPULAR RESORTS.

There are many places of popular resort in this county, with delightful drives leading thereto, which are taken advantage of by pleasure-seekers. San José, itself, is a center of attractions for tourists. Its splendid hotels and charming surroundings need but to be seen to be appreciated. But the greatest charm of all is its climate. Seven miles distant from the city are the White Sulphur Springs, located in Penitencia Cañon. Here is a new hotel and bath-house, a fine mountain stream flowing by, and some grand scenery. An easy hour's drive from town, many people ride out for a morning bath, returning in time for breakfast. The Saratoga Springs and Vichy Springs, at Almaden, each have their attractions, and are destined to become famous places of pleasurable resort. The waters of these springs resemble very closely those whence they derive their names. But the principal watering-place of the county is the Gilroy Hot Springs, located in the eastern range of hills, about twelve miles easterly from the City of Gilroy. Here is a fine hotel, together with some forty or fifty little cottages, scattered around among the trees, for the use of visitors. The scenery is grandly beautiful. The waters, which are strongly impregnated with minerals, are abundant, sparkling as crystal, and of a temperature of one hundred and twelve degrees. Within a few feet of the hot spring is a spring of pure cold water. The Coyote Creek flows through the cañon close by, abounding, in the season, with speckled trout. This place is the resort of hundreds of visitors every Summer—seekers of pleasure and health. The mountains in the vicinity abound in game, and are the delight of the sportsman.

GENERAL OBSERVATIONS.

There are a large number of people in all of the Atlantic States—in the Northern and Western especially—persons of means, many of them, and invalids, who have become tired and disgusted with their disagreeable Winters, as well as the almost intolerable heat of their sultry midsummers. These people are looking about them for a more desirable country and climate. Many have tried Florida, and other States of the South, but without finding the blissful Adienn that their souls longed for. Until recently California could be reached only by a long and dreaded sea voyage. The country seemed almost out of the world. But the overland railroad, with its trains of palace cars, has changed all that. A few days of luxurious hotel life on wheels, and the stranger is set down in San Francisco, a city of nearly two hundred thousand inhabitants, where the best of hotel fare, and the cost of living, is cheaper than in any other large city on the continent.

People of means—with plethoric purses and healthy incomes—need not trouble themselves much about the business resources of any country that may have attractions enough for them to visit. If health or pleasure is their object they do not bother themselves much with business affairs, and will naturally seek those countries that will afford them the largest measure of satisfaction. But all are not thus comfortably situated. Many who come here must needs engage in business pursuits. Others will come dependent solely upon their ready and willing hands to earn their daily bread. What are the opportunities and chances for these classes? how can they obtain a subsistence? are questions that most nearly concern them.

Of course, in moving to any new country, the man of capital has large advantages over the one without. While California possesses large tracts of Government land, it is not always desirable for the stranger to locate thereon, remote from schools and the advantages of society, as they necessarily must be. The best portions of the State—the choice locations—are already occupied. Nevertheless, land in the most desirable places is reasonably cheap, and the opportunities for profitable industry and successful enterprise are as good, probably, as can be found anywhere. At this writing (the latter part of July) there is not, and need not be for months to come, an able-bodied laboring man in the State idle, unless so from choice He can find abundant employment in the harvest fields at from two dollars and fifty cents to three dollars a day, and board; and he need fear no competition from "Chinese cheap labor." There is work enough for all, and more too.

Men fail here as everywhere else. There are always many idlers who are anxious not to find employment. They prefer to hang around the towns, frequenting the saloons, and ekeing out a make-shift existence. But this is no argument against the country. We know that farming pays—that stock raising, dairying, and fruit culture yield good profits, when properly conducted. Manufacturing enterprises, of which, as yet, there are comparatively few, also pay reasonably well. There are many industries that the thoughtful, industrious, and persevering man can engage in that would, no doubt, lead to competence; and fortunes are still by no means beyond the reach of those who keep their eyes open and possess the requisite money-making faculty.

After all, the acquisition of wealth is not the highest end and aim of existence. Health is of far greater worth. It is better to have little, in a country where one can enjoy that little—in a land of genial skies and mild, health-giving airs—than much in a land of desolation.

The farmer of the Northern States toils hard during the Summer months, and fills his barns, granaries, and cellars with the product of his labor, to be consumed during the long, dreary Winter that follows; and if he comes out a little more than even he considers himself in luck. Here there is no portion of the year that he cannot produce something, and with less hard labor than in any portion of the older States. If grain growing is his object, here he can produce two crops, and sometimes three, from once seeding. His cattle will shift for themselves throughout the year, although upon small farms it is better to let them have the waste straw of the farm to run to during the few weeks intervening between the old feed and the new, or while the former, bleached by the Fall rains, is deprived of much of its nutriment. It has been a common practice, in years past, for farmers to burn their straw to get it out of the way of the new crop. But many of them are becoming wiser in this matter of late. If he desires to engage in horticulture, hop growing, silk culture, viniculture, and the like, here in this beautiful vale of Santa Clara is the country, of all others, we would recommend to him.

TRANSACTIONS

OF THE

San Joaquin Valley District Agricultural Society,

FOR

THE YEAR 1872.

REPORT.

To the honorable the State Board of Agriculture of the State of California:

Gentlemen: In pursuance of an Act of the Legislature of the State of California, entitled "An Act for the encouragement of agriculture and other industries," approved March twenty-first, eighteen hundred and seventy-two, the undersigned, on behalf of the Board of Managers of the San Joaquin Valley District Agricultural Society, respectfully submit the following report of the transactions of the society for the year eighteen hundred and seventy-two, and other matters provided for in said Act.

The transactions of the society consist only of frequent meetings of the Board for the transaction of ordinary business, the principal of which have been in reference to the care and improvement of the Fair Grounds and track, and the arrangement and circulation of a premium list for the Fair, and making suitable provisions for holding the annual Fair for eighteen hundred and seventy-two, the detailed proceedings of which, according to the records of the society, would be too voluminous for this report. It is also required that there shall be included in such report a list of articles exhibited and premiums awarded.

The following is a list of the animals and articles exhibited:

ANIMALS EXHIBITED AT THE FAIR GROUNDS.

CATTLE—DURHAM.

Bulls, thoroughbred, three years old and upward.

E. S. Holden—Durham bull, Blanco.

Cows, three years old and upward.

W. L. Overhiser—Rosette 2d, Rosette 3d, Tulip 6th.
E. S. Holden—Nellie, Fannie, Mio.

Bulls, two years old and upward.

Jesse D. Carr—Butterdale, Romeo.
W. L. Overhiser—Third Grand Turk of Oak Home.

Cows, two years old and upward.

Jesse D. Carr—Laura and calf, Maud and calf.
W. L. Overhiser—Tulip 8th.
E. S. Holden—Daisy.

Bulls, one year old and upward.

W. L. Overhiser—Fourth Grand Turk of Oak Home.
E. S. Holden—Nevada, Blanche.

Heifers, one year old.

W. L. Overhiser—Rosette 6th, Duchesse de Argentine, Flora Temple 6th, Tulip 10th, Curiosity 4th, Rosette 7th.
E. S. Holden—Rosa 2d, Fawn, Snowdrop.

Thoroughbred Calves.

W. L. Overhiser—Ninth Grand Turk of Oak Home, Eleventh Grand Turk of Oak Home.
E. S. Holden—Oakdale, Blanco 2d.

Graded milch cows with calves.

Jesse D. Carr—Maud and calf, Laura and calf.
M. Neff—Dolly Varden (Durham and Devonshire).

SWEEPSTAKES.

Bulls.

W. L. Overhiser—Third Grand Turk of Oak Home, Fourth Grand Turk of Oak Home, Oak Home.
Jesse D. Carr—Butterdale, Romeo.
George R. Vernon—Dandy Jim.
E. S. Holden—Blanco, Blanco 2d.

Cows.

W. L. Overhiser—Rosette 2d, Rosette 3d.
Jesse D. Carr—Laura, Maud.
E. S. Holden—Rosa 2d.

HORSES—THOROUGHBRED.

Stallions, four years old and upward.

A. Wolf—Correct, nine years old.
Charles Blood—Romulus, nine years old.

One year old.

John Tyree—Return.
James Satterlee—Twenty-one.
T. B. Day—Red Dollar.

Colts.

James Satterlee—Morphine.
B. S. Clark—Brass; owned by Hon. C. M. Creanor.

Stallions, for all purposes, four years old and upward.

G. W. Sampson—Stockton, seven years old.
Noah Burrows—Young Chieftain, four years old.
Daniel Noland—Washington Chief, five years old.
J. R. McKee—Walk the Water, eleven years old.
A. Miller—Jordan, six years old.
L. U. Sheppee—Bay Colt, four years old.
W. D. Ashley—Red Lion.

Three years old.

Mr. Filloon—Dexter.
John Hogan—Pacific.
W. D. Ashley—Bismarck.

Two years old.

Charles Braid—Horace Greeley.
J. H. Tone—New York.

Sucking Colts.

F. S. Hines—Lady McClellan, by McClellan; dam, Blackhawk; five months old.

Andrew Wolf—Captain Lewis, five months old; by McClellan; dam, Lady Dale.

M. A. Smith—General, four months old; by Hiram Drew; dam, Nena Sahib.

J. K. Myers—Ned, five months old; by David Hill; dam, Dolly. Laura Hill, five months old; by David Hill; dam, Kate.

Robert Lovell, of Stanislaus—Charlie, four months old. Rose, four months old.

J. A. Sheppard—Minnie Bell, four months old; by Stockton; dam, Beckie.

J. H. Dodge—Bird, five months old; dam, Jim Crow. Kitty, four months old; dam, unknown. Biddy, four months old; dam, unknown. All by California; mare colt, five months old.

Yates & Green, of San Joaquin—A mare colt four months old; owned by Mr. Pratt. A stallion colt, five months old; owned by C. F. Munson. A stallion colt, four months old; owned by C. F. Monson. A mare colt, five months old; owned by W. W. Post. All sired by Hiram Drew.

W. L. Overhiser—A stallion colt, three months old. A mare colt, five months old; a mare colt, seven months old.

W. G. Phelps, San Joaquin—Norman, five months old; by McClellan; dam, Norma. Sultan, four months old; by McClellan; dam, Sultana. Ivanhoe, four months old; by McClellan; dam, Flora McIver. Isis, four months old; by McClellan; dam, Maud. Lucinda, four months old; by McClellan; dam, Pretty Poll. Cricket, four months old; by McClellan; dam, Jane Ingelow.

Frank Eck—Roland, five months old.

W. D. Ashley—Mary Hill, five months old.

J. A. McCloud—Salem, four months old. Pet, four months old.

C. H. Sesson—Lady Wolf, four months old.

Stallions, for all purposes, three years old and upward, raised in the District.

W. D. Ashley—Red Lion, four years old. Bismarck, three years old.

L. U. Sheppee—Bay Colt, four years old.

Thoroughbred Mares.

Andrew Wolf—Lady Dale, seven years old; by Owen Dale; dam, Mary Blain. Dolly Varden, one year old; by Woodward; dam, Minnie Warren.

John Tyree—Carrie Miller, five years old; by Veto; dam, Fanny Howard. Gladiator, three years old; by Norfolk; dam, Fanny Howard. Sally Thurston, two years old; by Norfolk; dam, Quien Sabe.

James Satterlee—Lodi Filly, five years old; by Norfolk; dam, Susie Blair.

Thoroughbred Geldings.

John Tyree—Modesto, four years old; by Veto; dam, by Jack Hawkins.

James Satterlee—Gen. McDowell, six years old; by Langford; dam, Susie Blair.

Mares, for all purposes, four years old and upward.

James Sheppard—Quien Sabe, nine years old; by Messenger; dam, by Messenger.

J. K. Myers—Kate, nine years old; by Simpson; dam, unknown.

Robert Lovell, of Stanislaus—Fanny, nine years old. Kate, ten years old.

Mr. Trellon, of Fresno—Jennie, three years old.

J. A. Sheppard—Bick, six years old; by Eclipse; dam, Messenger.

John Ladd—Kett, six years old; by St. Lawrence; dam, Messenger.

J. H. Tone, of San Joaquin—Ellen Dale, seven years old; by Cloverdale; dam, unknown.

W. G. Phelps—Maud, six years old; by Langford; dam, Polly Turner.

Mares, for all purposes.

J. H. Tone—Maggie, by Norfolk; age not given. Martha Ellen, by Veto.

Draught Horses.

John Miller—Planter (gelding), four years old; by old Planter.

G. W. Sampson—Duke of Wellington, three years old; by Prince Consort; dam, by Clydesdale.

Frank Eck—Dolly, eight years old.

W. G. Phelps—Norma, three years old; by Prince Consort; dam, Polly Turner.

John Crofton—Planter, five years old; by old Planter.

John White—Sam, seven years old. Maggie, five years old.

Roadster Stallions.

G. W. Sampson—Billy Hatch, twenty-four years old; by Blackhawk; dam, by Messenger.

Jesse D. Carr, of Monterey—Membrino, three years old; by Membrino Patchen; dam, Lady Ellinor.

Thomas E. Hughes, of Stanislaus—Major, six years old; by Logan Pacific; dam, unknown.

M. L. Bird—California Chief, two years old; by Kentucky Hunter; dam, Julia. General Sheridan, two years old; by Kentucky Hunter; dam, Bell.

J. W. R. Hitchcock—Captain Morse, by Billy Hatch; dam, by Messenger.

Roadster Mares.

G. W. Sampson—Lucy, six years old; by Billy Hatch; dam, by Pilgrim.

E. S. Holden—Fanny, seven years old.

Farm Horses—Span.

W. G. Phelps—Polly Turner and Durock.

John White—Charlie and Annie.

Saddle Horses.

J. R. McKee—Harry Bluff, ten years old.

Sweepstakes—Stallions and Mares.

J. D. Carr—Membrino, three years old; by Membrino Patchen; dam, Lady Ellinor.

Thoroughbred Geldings.

John Tyree—Modesto, four years old; by Veto; dam, by Jack Hawkins.

James Satterlee—Gen. McDowell, six years old; by Langford; dam, Susie Blair.

Dr. Thorndike—A single roadster, named Honest George.

Stallions, one year old.

J. H. Dodge—Western Boy, by Chieftain; dam, by Jim Crow.

J. W. R. Hitchcock—Richmond, by Billy Hatch; dam, by Richmond.

Stallions—Sweepstakes.

J. H. Tone—New York, two years old; by Norfolk; dam, Ellen Dale.

Mares—Sweepstakes.

J. H. Tone—Ellen Dale, seven years old; by Owen Dale; dam, unknown.

Family of Colts.

J. H. Tone—Kate and Tom.

Span of Carriage Horses.

J. A. McCloud—Jack and General.

Span of Roadsters.

J. A. McCloud—Blonde and Mate.
Mr. Culver—Charley and Bill.
J. W. Hill—Span of geldings.

JACKS AND JENNETS.

W. H. Freeman—Jack, Sinbad; jennet, Diadem.

SHEEP AND GOATS.

Severance & Peet—Spanish Merino ram Eureka, six years old; ram Hero, three years old; and three yearling bucks.

C. C. Baker—Spanish Merino ram Silver Mine, Jr., three years old; ram Robbie, two years old; and ram Kearsarge, two years old—all Spanish Merino.

Smith & Overhiser—Challenge, two years old; Wide-awake, two years old; Comet, Jr., two years old; and three buck lambs.

C. C. Baker—Pen of one-year-old rams, and pen of ram lambs.

Ewes—Spanish Merino.

Severance & Peet—Twelve one-year-old ewes.
Smith & Overhiser—Ten two-year-old ewes.
J. Sarles—One ewe, pen of ewes.
Smith & Overhiser—Pen of five ewe lambs.
C. C. Baker—Pen of five ewe lambs.
J. Sarles—Pen of ewe lambs, all Spanish.
Shippee & Ashley—One Southdown ewe.

Cotswold Sheep—Bucks.

Dorsey & Ewing—One two-year-old buck; two rams, five years old.
J. L. Carnduff—Victor, six months old; Champion, two years old.

Ewes.

Dorsey & Ewing—Emma Young, one year old; Julia, two years old; Sallie, two years old; Beauty, five months old; Clara, five months old.

Graded Cotswold.

Shippee & Ashley—Five ewes and three bucks.

Sweepstakes—Bucks.

Smith & Overhiser—Challenge, Wide-awake, and Comet.
C. C. Baker—Silver Wine, Robbie, and Kearsarge.
Dorsey & Ewing—William Calloway.

Sweepstakes—Ewes.

Smith & Overhiser—No. 516.
Dorsey & Ewing—Julia.
J. Sarles—One ewe.

SWINE.

Essex.

B. S. Davis—Stonewall Jackson, fifteen months old; Kate, fifteen months old; and seven pigs, each three months old. They were brought from Murphy's, Calaveras County.

ARTICLES EXHIBITED AT THE PAVILION.

Minnie Smith—Two pencil drawings.

James Crosier—Fifty-six varieties of apples, sixteen of pears, five of grapes, one of egg plant, one of pepper.

Walter Baggs—Three rabbits, one silk rabbit.

Mary Donnallan—One worsted and thread tidy; specimens of white wheat imported from France.

J. C. Gage—One coop native poultry.

Elizabeth Owens, aged seventy-two years—One bedspread.

Mrs. J. Sutherland—One coop of Poland chickens, two coops Poland ducks, one year old and younger.

Miss E. Green—One water-color painting.

J. D. Winter—One sack Nonpareil wheat, raised eight miles east of Stockton.

Mrs. D. Terry—One specimen of tomatoes, one of cucumbers.

Mrs. Doley, of Columbia—Frame of pressed flowers.

Mrs. J. J. Shoemaker—Bedspread.

Rebecca Laguna, aged eight years—One embroidered cotton tidy and crochet work.

Mrs. E. R. Stewart—One colored photograph.

Mrs. William Lyons—Six varieties of plums in spirits.

Mrs. Sarah Beaumont—One knit woolen shawl, two specimens network.

Miss Lucy Grove—Two mosswork specimens, one specimen pressed leaves.

Mrs. E. Owens—One specimen needlework.

Mrs. B. F. Barney—One crocheted tidy, two pincushions.

Mrs. A. E. Beaumont—Five specimens of preserved fruits, one coop chickens, one coop ducks.

Mrs. Beaumont—Eight varieties of ranch vegetables.

J. P. Spooner—Display of photographs, forty-six pictures in frames.

M. L. Bowdish—One challenge feed machine for farm use.

Mrs. J. C. Smith—Four varieties fancy work.

J. C. Evans—Samples of almonds.

Mrs. R. S. Elsworth—One machine-made shirt, made in four hours; one hand-made shirt, made in nine hours.

Stewart & Derrick—Two coops of bronze turkeys; sample of packed butter.

G. S. Allard—Seven varieties water colors on one card, one oil painting, one pencil drawing, one Oriental painting.

John England—Varieties of fruit.

William Hall—One coop Brahmas, ten months old; one of yearlings.

L. M. Cutting—Display of agricultural implements.

Mrs. E. B. Eaton—Shell frames and brackets.

Elsworth & Washburn—One Judge's desk, two school desks, made of Oregon maple; croquet set made of osage orange and locust grown on Weber's Point, Stockton.

George West—Two varieties brandy, two varieties wine.

Schell, Krause & Co.—Ten varieties of wine and brandy.

George Harkness—Two varieties peaches.

Mrs. J. C. Reid—Eight varieties apples, twelve glasses jelly, two jars fruit.

Mrs. W. H. Lyons—One variety choice pears.

Mrs. Joseph Hale—Thirty-five jars preserved fruits, six jars sweet and sour pickles, one basket preserved flowers, eleven glasses assorted jellies.

Insane Asylum—Varieties white Syria grapes.

—— Wynkoop—Black Prince grapes.

P. Mengel—Nineteen pairs custom-made boots and shoes.

E. Bagley—Four golden-spangled chickens, three silver-spangled Hamburgs.

John Sedgwick—A large variety of Brahmas; Japanese bantams, and silver Hamburg chickens.

Miss Lucy Groves—One bedspread, two varieties of worsted work.

Wash. Trahern—One variety Nonpareil wheat.

Malone & Davis, agents for Stockton Woolen Mills—Varieties of blankets, cloths, etc.

Stewart & Derrick—One variety Chile wheat.

W. B. Day—One variety fruit; twenty-five acres buckwheat.

Mrs. J. R. McClellan—Five varieties machine sewing.

Mrs. Rose Eastman—Worsted work.

Dr. E. S. Holden—One coop Japanese bantams (clay-colored), one coop light Brahmas.

C. D. Benjamin—One sack Excelsior wheat.

Mrs. I. R. Wilbur—Shell frame with moss wreath, seed frame with Autumn leaves.

Jones & Hewlett—Sulky gangplow, "Irish Champion."

Miss Fannie Sargent—Pencil drawings.

Mrs. Lottman—Plum, currant, raspberry, and quince jelly, quince preserves.

Mrs. L. M. Cutting—Varieties fancy work.

Jacob Long—Varieties peaches and pears.

Hattie and Kitty Gruper—Varieties worsted, hair flowers, feather flowers, leather frame.

Mrs. R. B. Johnson—Cases of millinery goods.

Lothrop & Noble—Varieties hats and caps.

Miss Mary Hamilton—Oil painting, "Eastern Morn;" black and white crayon, "Castle of Chillon;" colored crayon, sea-moss wreath.

R. K. Michaels—Fourteen Wheeler & Wilson sewing machines.

J. J. Evans—Coop of peafowls and other poultry.

Peter N. Young—Varieties pears, apples, and quinces.

J. B. Webster—Display of agricultural implements.

Miss M. Buchenfelt—Crochet tidy.

Alexander Mackay, San Francisco—Domestic, list, and rag carpets.

Matteson & Williamson—Two sulky gang plows, one four-gang plow, two chisel cultivators.

Miss S. E. Randall—Sea-moss picture.

William Inglis—Case of crackers.

Mrs. M. A. Solve—Frames moss work.

Mrs. Frank Rock—Knot quilt.

Mrs. E. Moore—Frame shell work.

John Black—One case California wine.

Chris. Miller—Model ship.

E. Mortels—Wreath, bouquets, and cross of Autumn flowers.

W. H. Keep—Double-acting force pump, one horse-power, double-acting force pump attached.

Globe Iron Works—Blacksmith's blower, No. 1 portable forge, No. 3 portable forge.

Mrs. Elizabeth McKee—Breccia work, sample cotton crochet netting, sample hand sewing, oilcloth basket.

J. C. Broden—Working model of Golden Gate grain separator; specimen of penmanship executed by his son, ten years old; sample Chinese beans.

Joseph Putnam—Bale of hops, watermelons, five varieties grapes.

T. Shirley—Variety white Chile wheat in stalk, grown in Stanislaus County.

William Kierski—Variety needlework.

Hamlet & Freeman—Variety of soap.

L. M. Hickman—Outfit for New England kitchen.

Miss Ella Miller—Fine specimens needlework.

Agnes Madden—Variety waxwork.

Agnes A. Bugbey—Complete worsted and bead toilet set; variety of stamping and water-color drawing.

Mrs. Joseph Hale—Two loaves of bread.

Shippee & Ashley—Specimens of wool.

Mrs. W. H. Lyons—Two loaves bread.

Miss Rose Sedgwick—Box walnuts.

Ed. Moore—Coop dark Brahmas, coop young Brahmas.

Mrs. William Lottman—Loaf bread.

D. A. Learned—Seven varieties grapes.

William Kierski—Black Spanish cock.

Mrs. M. Green—Loaf home-made bread.

Miss Hattie West—Bouquet.

Joseph Patoreuer—Five varieties grapes.

Mrs. N. B. Sperry—Knit tidy.

Miss Belle Whale—Bouquet of hairwork.

D. A. Learned—Sample tobacco.

Mrs. Fitch—Two oil paintings.

Mrs. Titus—Five oil paintings.

Mrs. Gorham—Three oil paintings.

Mrs. William B. West—Floral cross.

Fred. Arnold—Case boots and shoes.

D. W. Fanning—Sample Indian corn.

Miss Ella Eaton—Three pencil and one water-color drawings.

Miss Viola Strawbridge—Crayon drawing.

W. H. Van Vlear—Fine Damascus-twist, breech-loading shotgun.

Miss Helen Lauder—Air castle, scent bag.

L. M. Hickman—Has a complete outfit for a New England kitchen, embracing every utensil that could be used in that department of housekeeping.

Lothrop & Noble—Have a fine display of fashionable hats and caps.

Williams & More—Have on exhibition choice perfumery and other articles.

W. H. Keeler—Makes an exhibition of valuable and beautiful jewelry and watches, which, for taste in arrangement, is admired by all.

E. S. Holman—Is on hand with the choicest perfumery, and articles prepared by himself, making an excellent display.

White & Davenport—Have on exhibition fine specimens of dental work.

Mrs. R. B. Johnson—Has a very tastefully arranged case of fashionable millinery goods.

P. Mengel—Exhibits finely finished boots and shoes, manufactured by him.

Fred. Arnold—Displays an assortment of his stock of boots and shoes.

H. T. Dorrance—Represents his business by displaying elegant saddles. One among the number is to be presented to the successful Knight.

George West—Has arranged a beautiful collection of flowering plants, which add much to the appearance of the Pavilion.

J. Hanich—One pair of black Spanish fowls.

J. K. Weber—One cotton knit quilt; one worsted afghan.

V. Galgiani—Display of vegetables, and twenty-five varieties of grapes.

William Hickman—One coop Houdans; one coop buff Cochins, three months old.

H. T. Dorrance—Display of elegant saddles.

Betts Brothers, San Francisco—One set of carriage springs.

Henderson & Clark, Victoria—One-horse family carriage; one top buggy; one unfinished trotting buggy; one set wheels.

Nicholas Lumsden—Machine for the manufacture of screwed boots

Mrs. H. M. Fanning—Two frames of Autumn leaves.

Mrs. Sperry—Embroidered baby's shawl.

Browning & Elliott—Display of vegetables and fruit.

C. A. Heaton—One sample of cotton balls; and Spanish merino wool; and pears.

Wagner & Harrison—One side of sole leather; two sides of skirting.

Jackson & Bliss—Non-explosive agricultural steamer and farmer's boiler.

Peter N. Young—Two varieties figs.

Bauer & Weaver—Sixty-three rustic frames; four ladies' work boxes.

H. S. Austin—One sample of white Muscat grapes; and of white Syrian grapes.

Mrs. U. Martin—Copy of *Continental Gazette*, printed in seventeen hundred and ninety-four.

Mrs. Lyons—One box dried plums; one box raisins.

Miss Mary Lyons—Specimen of fresh white figs.

Mrs. George Carlon—Two water-color paintings.

J. Torrey, agent—Six new Wilson sewing machines.

Mrs. R. B. Johnson—Two baby dresses; two chemises; one nightgown; one set underwear; one pair drawers.

Miss Mary Davis—One walnut chair, with worsted embroidered seat and back.

G. N. Milco—Collection of fruit.

G. N. Milco, for James Goodwin, Mountain Pass, Tuolumne County—Five varieties grapes; two varieties peaches; one sample nectarines.

A. Burkett—Samples of black Hamburg, black Morocco, and Rem de Nice grapes.

Miss Lucy Grove—One specimen of moss and knitting work.

Miss M. K. Colburn—One specimen of ornamental knitting work.

E. B. Smith—One pair buff Cochins, and one dark Brahmas.

Miss Fannie Cart—Three tatted card baskets; one tatted collar.

William Kierski—Display of musical instruments, baby carriages, etc.

Miss R. Rosenthal—Two specimens of cotton embroidery.

Thomas H. Selby—Display of hardware.

Mrs. Charles Carner—Specimen of hair work.

Miss M. A. Allen—One hanging basket of flowers; one bouquet; two air castles.

Mrs. John Reid—Knit tidy, made by Rose Tally, twelve years of age.

Williams & Moore—One stand of perfumery and fancy goods.

Brown & Elliott—Variety of fruit grown by different persons.

W. H. Miller—Five stalks of timothy grass, eight feet four inches in height.

T. B. Day—Varieties of apples, pears, grapes, and figs, and display of pumpkins, squashes, beets, beans, etc.; also, one orchard, sixteen acres, seventy-five varieties of fruit.

Mrs. M. A. Young—Painting on glass.

Mrs. Dr. Reid—One plate of pomegranates; one plate figs.

Miss Nettie Van Vlear—One complete toilet set, five pieces; one charm string.

W. H. Keeler—One case of watches and jewelry.

Mrs. W. Keeler—Two medley pictures.

Miss Hattie and Kitty Draper—One basket of wax flowers.

William Van Wart—Flower, princess feather.

De Long, Combs & Co.—One bust in marble.

Miss Amelia Cory—One specimen pressed flowers.

Miss Lucy Grove—Two hanging baskets; one bouquet preserved natural flowers.

Miss Hattie West—One specimen of animal painting, in oil; one specimen oil painting.

Mrs. William Lyons—One box each of apples, peaches, figs, and pears, dried.

Mrs. E. Stewart—Two oil paintings.

V. M. Peyton—One box raisins, made from grapes raised by himself.

Mrs. Martin—One specimen each of raisins and currants.

G. C. Holman, Lockford—Box containing fourteen varieties of apples; box of Syrian and French cocoons.

Master Benjamin Armington—Three pencil drawings.

Jo. Coturier—Wigs, curls, switches, etc., of natural hair.

E. D. Waters—Specimens of dried, pickled, and preserved fruit.

Wheeler & Wilson—Specimens of machine work.

De Long, Combs & Co.—Three marble heads.

William G. Badger—Organs manufactured in Boston.

William B. West—Collection of plants, bouquets, and flowers.

Mrs. John Shea—One loaf of wheat bread.

William Van Vlear—One rifle, made by himself in San Joaquin County.

L. U. Sheppee—One sack Surprise oats.

Master Ed. Sedgwick—One box of dried figs.

Mrs. John C. Reid—Three varieties of jelly; specimens of quinces and pomegranates.

Miss Mary Lyons—Specimens of fresh purple figs.

Mrs. Fanny McClung (aged sixty-one years)—One crochet tidy; two cotton knit pillow slips.

Miss Brush—Two bouquets.

W. H. Groves—Trio of black Spanish fowls.

T. K. Hook—Specimens of bead work.

Mrs. F. Munter—Several varieties of fancy work.

PREMIUMS AWARDED.

FIRST DEPARTMENT.

CLASS I—THOROUGHBRED CATTLE.

Animals.	Exhibitors.	Residence.	Premiums.
Bulls.			
Best Durham bull, three years old and upward, Blanco	E. S. Holden	Stockton	$30
Best Durham bull, two years old, Third Grand Duke of Oak Home.	W. L. Overhiser.	San Joaquin Co.	$20
Durham bull Butterdale, two years old	Jesse D. Carr	Monterey	Spec. prem.
Durham bull Romeo, two years old.	Jesse D. Carr	Monterey	Spec. prem.
Durham bull Fourth Grand Duke of Oak Home, one year old	W. L. Overhiser.	San Joaquin Co.	$5
Durham calf Blanco Second	E. S. Holden	Stockton	Fram'd dip.
Cows.			
Best Durham cow, three years old and upward, Rosetta Second	W. L. Overhiser.	San Joaquin Co.	$20
Best Durham cow, two years old, Tulip Eighth	W. L. Overhiser.	San Joaquin Co.	$10
Best Durham heifer, one year old, Snowdrop	E. S. Holden	Stockton	$5
Graded Cattle.			
Best milch cow, Dolly Varden	M. Neff	San Joaquin Co.	$10
Sweepstakes.			
Best bull, two years old, Dandy Jim	J. R. Vernon	Santa Clara	$25
Best cow, four years old, Rosetta Second	W. L. Overhiser.	San Joaquin Co.	$10
Calf Dixie, three months old	Jesse D. Carr	Monterey	Spec. prem.
Calf Daisy, two and a half months old	Jesse D. Carr	Monterey	Spec. prem.
Best herd of Durhams	W. L. Overhiser.	San Joaquin Co.	$20

CLASS II—THOROUGHBRED HORSES.

Animals.	Exhibitors.	Residence.	Premiums.
Stallions.			
Best four years old and upward, Romulus	Charles Blood	Stockton	$40
Stallion Correct	Andrew Wolf	San Joaquin Co	Fram'd dip.
Stallion Return, one year old	J. E. Tyree	San Joaquin Co	$10
Stallion Twenty-one, one year old	James Satterlee	Stockton	Fram'd dip.
Sucking Colts.			
Colt Morphine	James Satterlee	Stockton	$5
Colt Brass	C. M. Creanor	San Joaquin Co	Fram'd dip.
Mares.			
Best four years old and upward, Lady Dale	Andrew Wolf	San Joaquin Co	First prem.
Second best do., Julia	C. M. Creanor	San Joaquin Co	Fram'd dip.
Best three years old and upward, Gladiola	J. E. Tyree	San Joaquin Co	First prem.
Best two years old and upward, Lillie Thurston	J. A. Shepherd	San Joaquin Co	$15
Best one year old and upward, Dolly Varden	Andrew Wolf	San Joaquin Co	$10
Geldings.			
Modesto	J. E. Tyree	San Joaquin Co	First prem.
Stallions, for all purposes.			
Best four years old and upward, bay colt (no name)	L. U. Sheppee	Stockton	$30
Colt Red Lion	W. D. Ashley	San Joaquin Co	Fram'd dip.
Best three years old, Bismarck	W. D. Ashley	Stockton	$15
Pacific, three years old	John Hogan	Stanislaus	Fram'd dip.
Best two years old, New York	J. H. Tone	San Joaquin Co	$10
Stallion Horace Greeley	Charles Braids	Calaveras	Fram'd dip.
Colt Captain Lewis, five months old	Andrew Wolf	San Joaquin Co	$5
Colt Captain Jenks, four months old	Charles Munsen	San Joaquin Co	Fram'd dip.
Best three years old, raised in the district, Bay Colt	L. U. Sheppee	Stockton	$20
Mares, for all purposes.			
Best four years old and upward, Kitt	John S. Ladd		$25
Second best do., Maud	Wm. G. Phelps	San Joaquin Co	Fram'd dip.
Best three years old and upward, Jennie	J. S. Felloon	Fresno	$20
Two years old and upward—none exhibited worthy of premium			
Best one year old and upward, Chin-du-Wan	Charles Blood	San Joaquin Co	$10
Second best do., Burney	J. A. McCloud	San Joaquin Co	Fram'd dip.

CLASS IV.

Animals.	Exhibitors.	Residence.	Premiums.
Draught Horses.			
Duke of Wellington	G. W. Samson, Jr.		$20
Roadster Stallions.			
McClellan	Mr. Lewis		$20
California Chief	M. L. Bird	San Joaquin Co	Fram'd dip.
Roadster Mares.			
Stockton Maid	Charles Sisson	San Joaquin Co	$15
Span of Farm Horses.			
Polly Turner and Duroc	W. G. Phelps	San Joaquin Co	$10
Saddle Horses.			
Harry Bluff	J. R. McKee		$5
Span Carriage Horses.			
Jack and General	J. A. McCloud	San Joaquin Co	...Premium.
Span Roadsters.			
Span geldings (no names)	J. W. Hill		
Family—Mare and colts.			
Beauty and seven colts	J. A. McCloud	San Joaquin Co	
Sweepstakes.			
Best stallion, Membrino, Jr.	Jesse D. Carr	Monterey	$10
Best mare, Lady Dale	Andrew Wolf	San Joaquin Co	$10
Special Premiums.			
Monarch	A. Musick	Sacramento	
Alexander Selkirk	A. Musick	Sacramento	
Membrino Chief	Jesse D. Carr	Monterey	$40

CLASS VI—JACKS AND JENNETS.

Animals.	Exhibitors.	Residence.	Premiums.
Sinbad	W. H. Freeman		$15
Diadem	W. H. Freeman		$10

CLASS VII—SHEEP.

Animals.	Exhibitors.	Residence.	Premiums.
Bucks.			
Best Spanish merino buck, Robler	C. C. Baker		$10
Best Southdown buck	Sheppee & Ashley	San Joaquin Co.	$10
Best Cotswold buck	Dorsey & Ewing.	Stanislaus County	$10
Ewes.			
Best Spanish merino ewe, No. 927	J. Sarles	San Joaquin Co.	$10
Best Southdown ewe	Sheppee & Ashley	San Joaquin Co.	$10
Best Cotswold ewe, Julia	Dorsey & Ewing.	Stanislaus County	$10
Graded Sheep.			
Best graded buck and ewe	Sheppee & Ashley	San Joaquin Co.	$10
Best collection of sheep, ten or more	Smith & Overhiser	San Joaquin Co.	$10
Sweepstakes.			
Buck Robler	C. C. Baker		$10
Ewe No. 947	J. Sarles	San Joaquin Co.	$5

REMARKS OF COMMITTEE.

In making these awards the committee feel that they have had no light task, in consequence of the general superiority of the sheep comprising the collection. In fact, so nearly equal are many of these sheep as to cause much difficulty in making choice. The pens of Messrs. Overhiser & Smith, and of Messrs. McConnell & Cotter, contain beautiful specimens of California-bred Spanish merinos; and those of Mr. L. J. Orcutt, and Messrs. Severance & Peet, excellent samples of the Vermont-bred Spanish merinos of unquestioned purity of blood; and so important do the committee consider the importation of such as those last named that they recommend a special premium to be given to Messrs. Severance & Peet and Mr. L. J. Orcutt for their display of imported Spanish merinos; also, to Messrs. McConnell & Cotter, for their display of both imported and home-bred Spanish merinos.

(Signed) SAMUEL MILLER,
C. J. SMITH.

Special premiums awarded in accordance with the above recommendation—each exhibitor ten dollars.

CLASS VIII—GOATS.

Animals.	Exhibitors.	Residence.	Premiums.
Best Cashmere buck, Bill Arp	J. C. Edwards		$10
Best female goat	J. C. Edwards		$10
Best kid	Thos. McCarty	Copperopolis	Fram'd dip.
Best female kid	Thos. McCarty	Copperopolis	Fram'd dip.

CLASS IX—WOOL.

Animals.	Exhibitors.	Residence.	Premiums.
Best collection of graded fleeces, five or more	Sheppee & Ashley	San Joaquin Co.	$3
Best fleece of Southdown	Sheppee & Ashley	San Joaquin Co.	$2
Special premium recommended to ——, of Fresno County, for samples of Spanish merino wool, exhibited by C. A. Heaton.			

CLASS X—SWINE.

Animals.	Exhibitors.	Residence.	Premiums.
Suffolk Swine.			
Best boar	State Insane Asylum	Stockton	$3
Best sow	State Insane Asylum	Stockton	$3
Best sow and pigs	State Insane Asylum	Stockton	$5
Poland Swine.			
Best boar	B. S. Davis		$3
Best sow	B. S. Davis		$3
Best sow and pigs	B. S. Davis		$5
Sweepstakes.			
Best boar	State Insane Asylum	Stockton	$5
Best sow	State Insane Asylum	Stockton	$5

CLASS XI—POULTRY.

Animals.	Exhibitors.	Residence.	Premiums.
Chickens.			
Best exhibit of native poultry	J. C. Gage		$5
Best Black Polands	Mrs. J. Sutherland		$5
Best Golden Spangled Polands	E. Bagley		$5
Best Light Brahmas	John Sedgwick		$5
Best Japanese Bantams	John Sedgwick		$5
Best Silver Spangled Hamburgs	John Sedgwick		$5
Best Houdans	J. J. Evans		$5
Best Buff Cochins	E. B. Smith		$5
Best Dark Brahmas	Ed. Moore		$5
Best Black Spanish	H. W. Weaver		$5
Best exhibit of different breeds	John Sedgwick		$10
Turkeys.			
Best lot of imported bronzed	Stewart & Derrick		$5
Ducks.			
Best Poland	Mrs. J. Sutherland		$3
Pea Fowls.			
Best lot of	J. J. Evans		$3

SECOND DEPARTMENT.

CLASS I.

Articles.	Exhibitors.	Premiums.
Sample of Surprise oats	L. U. Shippee	$5
Sample of buckwheat	T. B. Day	Fr'd Diploma.
Specimen of cotton raised on forty acres of land in Fresno County	Cale Davis	Special, $5, and fr'd Diploma.

CLASS II.

Articles.	Exhibitors.	Premiums.
Best collection of vegetables	T. B. Day	$10

CLASS III.

Articles.	Exhibitors.	Premiums.
Best sample of brandy, vintage of 1870	George West	$10
Best sample of brandy, vintage of 1871	George West	$10
Best sample of brandy, vintage of 1869	Schell, Krause & Co.	$10
Dry White Wine.		
Best sample, vintage of 1870	George West	$10
Best sample, vintage of 1871	C. Detten	$10
Dry Red Wine.		
Best sample, vintage of 1870	George West	$10
Best sample, vintage of 1871	C. Detten	$10
Madeira Wine.		
Best sample	George West	$10
Sherry Wine.		
Best sample	George West	$10
Port Wine.		
Best sample	George West	$10
Sweet White Wine.		
Best sample, vintage of 1871	C. Detten	$10
Best sample, vintage of 1870	George West	$10

CLASS IV—HORTICULTURAL DEPARTMENT.

Articles.	Exhibitors.	Premiums.
Apples.		
Best collection in district	James Crozier	$15
Second best collection in district	T. B. Day	$10
Best five varieties	P. N. Young	$5
Pears.		
Best collection	James Crozier	$10
Second best collection	P. N. Young	$5
Best five varieties	T. B. Day	$3
Best three varieties	H. Amhurst	$2
Peaches.		
Best collection	James Goodwin	$5
Second best collection	George Harkness	$3
Best twelve specimens	J. W. England	$3

CLASS IV—Continued.

Articles.	Exhibitors.	Premiums.
Nectarines.		
Best six specimens	James Goodwin	$3
Quinces.		
Best twelve specimens	T. B. Day	$3
Second best twelve specimens	P. N. Young	$3
Grapes.		
Best collection	James Goodwin	$15
Second best collection	Joseph Putnam	$10
Best five varieties	D. A. Learned	$5
Second best variety	V. Galgiani	$3
Best single variety	Insane Asylum	$2
Best raisin grapes	T. B. Day	$5
Figs, etc.		
Best collection of figs	P. N. Young.	$4
Second best collection of figs	Miss M. Lyons	$2
Best six specimens of pomegranates	Mrs. Dr. Reid	$3
Best lot almonds	J. C. Edwards	$5
Oranges and lemons	G. N. Milco	Special rec'd.
Fruits in glass, preserved in spirits.		
Best plums	Mrs. Wm. H. Lyons	$2
Fruits preserved in sugar.		
Best display	Mrs. Joseph Hale	$10
Best quinces	Mrs. J. C. Reid	$3
Best plums	Mrs. J. C. Reid	$3
Best peaches	Mrs. J. C. Reid	$3
Best pears	Mrs. Joseph Hale	$3
Best crabapple	Mrs. Joseph Hale	$3
Jellies.		
Best crabapple	Mrs. J. C. Reid	$3
Best grape	Mrs. Joseph Hale	$3
Best quince	Mrs. Wm. Lottman	$3
Best currant	Mrs. Wm. Lottman	$3
Pickles.		
Best cucumbers	Mrs. Joseph Hale	$3
Best peaches	Mrs. Joseph Hale	$3
Best tomatoes	Mrs. Joseph Hale	$3
Best gherkins	Mrs. Joseph Hale	$3
Best mixed	Mrs. A. E. Beaumont	$3

CLASS V—FLORAL DEPARTMENT.

Articles.	Exhibitors.	Premiums.
Best collection of flowering plants	Wm. B. West	$10
Combined cross and wreath, and bouquets	Miss E. Mortels	$5
Best hanging basket	Miss Lucy Grove	$5
Best pressed flowers	Miss Amelia Cory	$5

CLASS VI—BUTTER, CHEESE, ETC.

Articles.	Exhibitors.	Premiums.
Best packed butter	Stewart & Derrick	$10
Home-made bread and crackers.		
Best loaf	Mrs. Wm. H. Lyons	$5
Best display of crackers	William Inglis	$5

CLASS VII—DOMESTIC MANUFACTURES.

Articles.	Exhibitors.	Premiums.
Best display of blankets, cassimere, and flannel	Stockton Woolen Mills	$15
Best sample soap	Hamlet & Freeman	Fr'd Diploma.

THIRD DEPARTMENT.

CLASS I.

Articles.	Exhibitors.	Premiums.
Best display of agricultural implements	L. M. Cutting & Co.	$15
Buckeye mower	Jones & Hewlitt	Fr'd Diploma.
Chisel cultivators	Matteson & Williamson	$10
Horse forks and apparatus	Matteson & Williamson	$10
Two-edged four-gang plow	Matteson & Williamson	$10
Working model of grain separator	J. C. Bowden	$10 and framed Diploma.
Best grain sower, "California Gem"	J. B. Webster	$5

CLASS II—WHEELWRIGHTS.

Articles.	Exhibitors.	Premiums.
Best display of carriages	Henderson & Clark	$10
Studebaker's wagon	J. B. Webster	Fr'd diploma.
One two-horse family carriage	Henderson & Clark	$5
One buggy	Henderson & Clark	$5
Extra set of wheels, giving evidence of superior skill in workmanship	Henderson & Clark	Special—$25

CLASS III—HARNESS AND LEATHER.

Articles.	Exhibitors.	Premiums.
Best display of leather, manufactured in the district	Wagner & Harrison	$8
Best display of harness and saddlery	H. T. Dorrance & Co	$5

CLASS IV—MACHINERY AND BLACKSMITH WORK.

Articles.	Exhibitors.	Premiums.
Double-acting force pump	W. H. Keep	$5
Horse-power, with pump attached	W. H. Keep	Special.
Best display horseshoes	John Burns	$5
Set of springs	Betts Bros., San Francisco	Special.
Machine for manufacture of screwed boots	Nicholas Lumsden	Special, and diploma rec.

CLASS VI—MUSICAL INSTRUMENTS, ETC.

Articles.	Exhibitors.	Premiums.
Display of pianos and organs	William Kierski	Special rec.
Best school furniture; office desk manufactured for County Judge of Stanislaus County	Ellsworth & Washburn, Stockton	$5
Exhibit of Wood's organs	W. G. Badger	Special men.
Fine display of doors, blinds, sash, etc., manufactured by themselves, in Stockton	Ellsworth & Washburn	$10

CLASS VIII—NEEDLEWORK.

Articles.	Exhibitors.	Premiums.
Best hand sewing	Mrs. R. S. Ellsworth	$5
Best bead work	Mrs. T. K. Hook	$5
Best silk embroidery	Mrs. C. Mead	$5
Best ornamental needlework	Miss R. Rosenthal	$5
Best knit shawl, woolen	Miss S. A. Beaumont	$5
Best pair ottoman covers	Miss Lucy Grove	$5
Best fancy chair cushion and back	Miss Mary Davis	$5
Best lamp-stand mat	Mrs. F. Munter	$3
Best tatting	Miss Fannie Hart	$3
Best artificial flowers	Mrs. Rose Easton	$5
Best wax flowers	Miss Agnes Madden	$5
Best moss work	Mrs. S. Randall	$3
Best leaf work	Miss Lucy Grove	$3
Best shell work	Miss E. Moore	$3
Best braid work	Miss R. Rosenthal	$3
Best white quilt	Mrs. E. Owens	$3
Best patchwork	Miss Lucy Grove	$3
Best preserved natural flowers	Miss Lucy Grove	$5
Best display of millinery	Mrs. R. B. Johnson	$5

FIFTH DEPARTMENT.

CLASS I.

Articles.	Exhibitors.	Premiums.
Best colored photograph	Mrs. E. R. Stewart	$3
Best crayon drawing	Mrs. G. S. Allard	$3
Best landscape painting, water colors	Miss Sarah Randall	$5
Best animal painting, in oil	Miss Hattie West	$5
Collection of historical pictures, in oil	Mrs. E. Stewart	Special.
Landscape painting, in oil	Mrs. Fitch	$10
Crayon picture	Miss Viola Strawbridge	$3
Pencil drawing	Miss Fannie Sargent	$3
Magnificent display of forty-seven frames, portraits finished in water colors, plain and colors, plain and colored photographs, and portraits retouched in India ink	J. P. Spooner	$25
Penmanship	Alvah Duane Bowden (aged thirteen years).	Fr'd diploma.

CLASS II—SCULPTURE.

Articles.	Exhibitors.	Premiums.
Collection of marble work	De Long, Combs & Co., San José	Fr'd diploma.

MISCELLANEOUS.

Articles.	Exhibitors.	Premiums.
Firearms.		
Rifle, of his own manufacture	W. H. Van Vlear	$5
Hats and Caps.		
Best display	Lothrop & Noble	$5
Boots and Shoes.		
Best display of custom-made boots and shoes, manufactured in the district	P. Mengel	$5
Tinware.		
Best display of tinware and kitchen furniture	L. M. Hickman	Fr'd diploma.

TRIALS OF SPEED.

TUESDAY, SEPTEMBER 10TH.

FIRST RACE.

Running race for two-year-olds—one hundred dollars.

First premium awarded to A. Musick, for Monarch, seventy-five dollars.
Second premium to J. A. Shepherd, for Augustin, twenty-five dollars.

SECOND RACE.

Trotting race—one hundred and fifty dollars.

First premium to James Harris, for Countess, one hundred dollars.
Second premium to Harry Lucas, for Billy Haywood, fifty dollars.

Running race—saddle horses.

John Sutherland, for Daisy, twenty-five dollars.

WEDNESDAY, SEPTEMBER 11TH.

Pacing race—three hundred and fifty dollars.

First premium to A. St. John, for Defiance, one hundred and fifty dollars.
Second premium to Longfellow, one hundred dollars.
Third premium to James Harris, for Trifle, fifty dollars.

THURSDAY, SEPTEMBER 12TH.

Trotting race—five hundred and sixty dollars.

First premium to Benjamin E. Harris, for Regulator, three hundred and fifty dollars.
Second premium to A. F. Smith, for George Treat, one hundred and forty dollars.
Third premium to W. H. Seal, for Black Swan, seventy dollars.

FRIDAY, SEPTEMBER 13TH.

Running race—three hundred and fifty dollars.

First premium to A. Musick, for Monarch, two hundred dollars.
Second premium to Deak Havey, for Fair Fore, one hundred dollars.
Other horse distanced.

Pacing race—three hundred and fifty dollars.

First premium to P. Goodhue, for Capitola, two hundred dollars.
Second premium to W. H. Shears, for Sincoe, one hundred dollars.
Third premium to A. St. John, for Trifle, fifty dollars.

FINANCIAL REPORT.

A statement of the receipts and expenditures for the year is also required, which is herewith submitted, as follows:

Date.	On what account.	Amount.
	Receipts at hall.	
Sept. 13..	Receipts from sale of membership tickets for time of Fair	$1,738 00
	Door tickets	798 50
	Receipts at track.	
	Received from sale of tickets from September 10th to 13th, inclusive	299 50
	Gate money for same time	1,235 05
	Entrance fees for same time	429 50
	Ball tickets	144 00
	Proceeds of Controller's warrant for State appropriation, $2,000, discounted	1,925 00
	Charles Blood, for rent of track	575 00
	Sale of old pump	3 00
Oct. 14...	Sale of old lumber	35 00
	Milt. Kruse, rent of track	100 00
	Total receipts	$7,282 55

Date.	On what account.		Amount.
	Expenditures.		
	Rent of hall for ball		$42 00
	Music		401 00
	Hay at track		204 40
	Carriage hire		10 50
	Water		10 00
	Gas fitting		203 00
	Gas		136 50
	Cloth for tables		16 85
	Ice		18 35
	Ribbon at track		4 88
	Rent of hall		100 00
	L. M. Cutting & Co., sundries		30 85
	Crockery		5 25
	Watering track in June		46 50
	Watering track time of Fair		125 00
	Setting glass, etc		12 25
	J. C. Gage, conveyance for band		30 00
	Rosettes for ball		5 37
	Bill posting		30 00
	One office table		4 00
	Drayage and expressage		26 10
	Stationery		55 75
	Sundry small bills		35 25
	Expenditures at track, for labor and attendance		187 79
	Expenditures at hall, including labor and material for decoration, and tables, and wages of attendants during the Fair		411 10
	Expended for repairs and improvements at track		671 07
	Expended on account of Knights at tournament, including prize saddle, lances, costumes, etc		196 50
	Printing and advertising.		
	San Joaquin Republican	$151 25	
	D. H. Berdine	28 00	
	Evening Herald	132 50	
	Stockton Independent	235 50	
	District papers	130 00	
	Spirit of the Times	50 00	
			727 25
	Secretary, balance of salary		450 00
	Premiums		3,039 26
	Total amount of expenditure		$7,236 77
	Balance in treasury		45 78
			$7,282 55

Date.	On what account.	Amount.
	Indebtedness.	
	Bills audited and unpaid	$68 05
	Premiums awarded and unpaid	311 25
	State and county taxes	77 75
	Total indebtedness	$457 05

The result of the Fair, considered in a financial point of view, has much disappointed the expectations of the Board. They felt confident that the great success which had been achieved by the farmers of the valley in this year of plenty, would contribute in a great degree to the success of the Fair; but this very fact, on which they relied as a source of encouragement, proved to be a drawback. Our Fair was held at a time when every farmer in our broad and fertile valley was busily engaged in securing the fruits of his labor, so that no one could absent himself from his duties without great inconvenience and prejudice to his interests. Besides this, many of the religious denominations in the city selected the time of the Fair for holding fairs in the interest of their respective churches, which necessarily withdrew a great number of our people from attendance on the Fair of the society.

The partial failure this year does not by any means discourage the managers from continuing their efforts for the future success and prosperity of the society. All they ask is an earnest coöperation and sympathy on the part of their fellow-citizens, and they feel assured of success.

The new industries inaugurated and new products produced in this district are required to be embraced in this report. Among the new industries, the cultivation and propagation of chiccory for market seems to be one of great importance. Messrs. Raab & Meine, both of them natives of Germany, where this is a leading branch of industry in certain districts, are the pioneers in this enterprise. They have a large tract of land under cultivation, and are provided with all the necessary apparatus for drying, grinding, and packing the article for shipment. When in full operation, they can turn out about two tons per day. They find a ready market for all they can produce. The different establishments in San Francisco engaged in grinding and preparing coffee and spices generally, give it a decided preference over the imported article, which is frequently found to be adulterated by the mixture of beets and other substances, while the article produced by them is perfectly pure and fresh. This branch of industry, so happily inaugurated by Messrs. Raab & Meine, is certainly destined to become a leading interest, and to contribute largely to the wealth and resources of this district.

The cultivation of cotton has of late attracted the attention of many of the settlers in the southern counties embraced in this district, and the results have been so satisfactory that it may be considered henceforth that cotton culture is to be classed among the leading industries, and to be regarded as another important item in the catalogue of the resources of this glorious State.

Another branch of industry which is beginning to attract attention is the culture of hops. Mr. Joseph Putnam, whose farm is on the Mokelumne River, exhibited some fine specimens at the late Fair. He represents the bottom lands on the Mokelumne, Calaveras, and other Rivers, as admirably adapted to their growth, and that they yield a better profit to him than any other crop he could cultivate on the same land.

Among other new industries, Messrs. R. B. Lane & Brother have established a paper mill, with all the modern appliances and improvements. It will be operated by the same machinery employed in the flouring mill immediately adjoining. They propose to manufacture every description of paper, from the common wrapping to the finest note. The enterprise will doubtless prove a success, if worth and capacity on the part of the proprietors are any guaranty of success.

The managers believe that the foregoing embraces all matters required by the law to be included in this report, and respectfully submit the same to your honorable Board.

J. K. DOAK, President.

H. T. COMPTON, Secretary.

ADDRESS OF A. W. ROYSTON.

DELIVERED BEFORE THE SAN JOAQUIN VALLEY AGRICULTURAL SOCIETY, SEPTEMBER TWELFTH, EIGHTEEN HUNDRED AND SEVENTY-TWO.

LADIES AND GENTLEMEN: The interesting spectacle witnessed by many of you this evening, affords a fit introduction to my subject to-night. The mimic tournament of to-day is but the decaying vestige of that great and powerful school of the feudal ages, so productive of valorous deeds, and so stimulative to honor and moral worth. The tournament was the military fair of Europe. On its portals were inscribed: "'Tis glory which gilds our sepulcher and embalms our name."

The needs flowing from the condition of those ages were personal prowess, protection to the weak, and fidelity to cause. At that military fair—the tournay—met the knight from England, Germany, France, Spain, and Italy, to crown lady-love; the lance was poised; the ring of their helmets and clash of their spears educated the Sydneys, Rolands, Bayards, de Lunas, and Tancreds. The peculiar type of the civilization of every age expresses itself in some form by national exhibitions or fairs.

Beneath a sky which rivals our own, long centuries ago, Greece assembled at the Olympic, and all that was sublime in thought, powerful or skillful in physical strength, beautiful in art, and glorious in science, contended for the wreath. Our age is industrial—we rear temples to science, and decorate altars to art. In lieu of the nineteenth century assembling to listen to the enchanting verses of poet, ennobling discourse of philosopher, and ambition-stirring recitals of historians, it erects a mighty pantechnicon wherein is to be found the growth of every clime, and production of a world's art; there electricity flashes an epic grander than the dream of Homer; steam improvises more useful teachings than Plato conceived, and physical science embodies a history which would bewilder the great Herodotus. How great the practical benefit of these world fairs. There, is the accumulated knowledge of all nations, and the centuries, in visible and tangible shape. Each nation has the advantage of viewing and comparing all that is great, useful, and beautiful, accomplished by every other nation, and by combining their excellences, advancing itself to a higher and more perfect civilization. There is an interchange of ideas which effaces prejudices, diffuses knowledge, stimulates industry, and awakens ingenuity. Our Fair is local; not here are the diversified products of various empires, but the different fruits and works of the San Joaquin Valley, itself an empire.

This being a neighborhood Fair, I shall consider neighborhood interests and needs only. This temple is dedicated alike to nature and art. It is the Olympic where contend for honors the skill of mechanical art and production of nature. I shall not attempt to drape the skeleton of statistics in rhetorical array, nor render a condensed report of the improvements in industrial implements, nor theorize as to the model by which the fertility of the soil may be stimulated, or that economy of manufacturing by which profits may be increased, but as to how the farmer may reap the benefit of his crop and the laborer the just reward of his industry. Here the farmers interchange ideas based upon actual experience as to the advantages or defects of the different agricultural implements, the peculiarities and adaptabilities of the various soils. The mechanic and manufacturer discuss the numerous materials and machinery used by them, thus gaining and imparting more information than it would be possible to express in the short time I ask your attention.

I shall not dwell on the high and honorable calling of agriculture, but shall simply quote from the Zande Vesta—the Persian Bible, a sufficient eulogy: "He who sows the ground with care and diligence, acquires a greater stock of religious merit than he could gain by the repetition of ten thousand prayers," and remark, the production of nature is the material of art.

We till a soil so rich it seems as if by the bounty of its productions it wells forth gratitude for its blessings. We live in a climate so Circean, yet invigorating, as if the air was stirred by angels' wings—beneath a sky so bright, clear, and purely beautiful, that it appears above us in God's star-gemmed mantle.

Yet amid all these blessings and bounties we suffer a curse. The soil is becoming rapidly exhausted. The more fabulous its yield and the greater the demand of the market, the poorer the farmer's remuneration; the more he accumulates debts, not wealth. The more industrious the mechanic, the greater the exertions of his energy and ingenuity, the more meagre the compensation.

Why is this? Centuries ago Artaxerxes, in general terms, solved the problem. Said he: "The authority of the Prince must be defended by military force; that force can only be maintained by taxes. All taxes must at last fall upon agriculture, and agriculture can never flourish except under the protection of moderation and justice." In other words, the essence of a nation's prosperity consists in a healthy and vigorous agriculture, and this condition can be attained only when invigorated by freedom from onerous taxation—when protected with moderation and justice.

Farmers of San Joaquin Valley, are your interests protected with moderation and justice? No! On this globe there lives not a people so uselessly and oppressively taxed as you are. By what power are you taxed? By the Federal Government? No! By the laws of California? No—for the State and county taxes are so light as not to attract comment. Then for what purpose and by whom are you taxed twenty-one dollars on every ton of wheat raised? Is that tax for the purpose of enforcing the laws, maintaining the Federal and State Governments, payment of the national and State debts, encouragement of industries, erection of school houses, education of the people, and extension of the commerce of our common country? No, for none of these purposes. It is paid to enrich corrupt brokers and ruinous monopolies.

Wheat to-day is worth sixty dollars per ton in Liverpool—here, at the water front, twenty-eight dollars and sixty cents. Last year it was worth in the Liverpool market eight cents only per hundred more than this year, yet last year you received two dollars and seventy cents per hundred; this year, one dollar and forty-two cents, one dollar and fifty cents, and one dollar and sixty cents per hundred here. Why this difference of one dollar and twenty-eight cents per hundred here, and only eight cents in Liverpool? Why is it the California farmer is compelled to accept for his grain less than half its market value? It is because of the monopolies. This year freight from San Francisco to Liverpool is twenty-five dollars per ton; last year it was ten dollars.

The monopoly ring and its ignorant hirelings assert that all over the world the price of tonnage is double this year what it was last. If such is the case there must be a cause. It is not from marine disasters, for statistics prove the loss of tonnage last year to be but slightly in excess of other years, and that the increase from building is greater than that loss. It is not that the earth has doubled its production, for instead of this year's crop being estimated in excess of the last there is a known deficiency. The commercial fleet of Christendom has not been summoned to swell hostile armadas; the salvos of artillery thundering to-day are the salutes to universal peace.

It is the San Francisco ring which has monopolized the control of ships visiting this coast this season, and who compel you to pay fifteen dollars per ton in excess of the regular charge and what it is worth. Is that protecting agriculture with justice and moderation? It is estimated this year that this State will ship seven hundred thousand tons of wheat, and four hundred thousand tons comes from the San Joaquin Valley. Think of it, farmers—you who are paying six millions of dollars to a monopoly, for no purpose on God's earth save to impoverish yourselves and enrich men whose glory is your ruin. Six millions—more than enough to construct and equip a railroad from Stockton to Visalia.

Again, the farmer of Fresno receives but twenty-one dollars per ton for wheat, while the Stockton and San Francisco markets quote twenty-eight. Why is this? Because he is compelled to pay to a railroad monopoly, for transportation, six dollars per ton to Stockton, a distance of some two hundred miles, or seven dollars to San Francisco, some two hundred and seventy-five miles.

In the East, where there is competition, it costs two dollars per ton to transport wheat one thousand miles, over roads the construction price of which was treble that of our valley road. Is it worth three times as much to transport a ton of wheat over this fine level valley, a distance of two hundred miles, as it is in the East one thousand, over mountains, morass, and river? No; but there is competition—here is none.

The farmer at Grayson pays three dollars per ton this year to Stockton. In former years one dollar only was demanded. Why should the boat charge be twice as much this year as formerly?

Is there any man so ignorant as not to know that every facility for land or river transportation within the borders of this State belongs to or is controlled by a selfish and prosperity-destroying monopoly, whose overgrown capital—the fruits of your donation—is wielded to crush the industries and tyrannize over the political liberties of the people, who, as if by magic, evoked it from nothingness.

How does the tax to this railroad monopoly sum up? That for the transportation to the water front of this grain crop you pay in excess of just charges an amount sufficient to build a narrow-gauge railroad from Stockton to Visalia.

Nor are these the only monopolies that poison the vitality and destroy the energies of the people. There is the grain-sack ring. In former years you paid twelve and fourteen cents each for sacks, this year nineteen—one third more than the usual price. Last year the laborers of Scotland and the countries of the Baltic were compensated by an abundant yield of jute, so that the increased price does not arise from scarcity of material. It is estimated that there is required ten million three hundred thousand sacks for this crop. The ring forces you to pay nineteen instead of twelve or thirteen cents, thereby committing the legitimate robbery of over six hundred and fifty thousand dollars. Is this protecting agriculture with justice and moderation? Immigration to this valley is checked from two causes: first, that millions of acres of unimproved lands are held by a few speculators, at prices ruinous to the producer and injurious to the general welfare of the State; second, the exorbitant charges for travel and transportation of freight over the railroad lines of this State debar the poor man from examining this splendid country, and absorb the profit of the laborer.

Can these evils be remedied, and by so doing protect agriculture? Yes. First, as to the means by which the ship-tonnage and grain-sack rings may be circumvented. In nearly every agricultural county Farmers' Clubs have been organized. Between them is maintained a correspondence. From the information they furnish, each to the other, an estimate could be made of the tonnage needed for the transportation of the crop. By the same means could be ascertained the approximate number of sacks required. Why could not a committee be appointed, constituted of one or two members from each county club, empowered to negotiate for the charter of ships and purchase of grain sacks?

Can we be liberated from the tyranny of the railroad monopoly? Yes; by the coöperative efforts of the people of this valley. Let there be built a narrow gauge railroad from this point to the fartherest extremity of this valley. The stock should be owned by the people—not one dollar in subsidy. For every cent subscribed, stock should be issued to the subscriber. The farmers, merchants, and mechanics owning the road could regulate the tariff of travel and freight.

Such a road in operation throughout the length of this valley would force the excavation of a ship canal from this point to Venice. Then, no longer would you, farmers, be compelled to slave for monopolies and the brokers of San Francisco; for remember, San Francisco is not a market, but the "pound foolish and penny wise" brokerage shop for the markets of Europe and Asia.

As an illustration of its liberal brokerage: On the second of last month the Liverpool market for California wheat was quoted at eleven shillings and eight pence per hundred; in San Francisco, the same day, at one dollar and fifty-five cents and one dollar and sixty cents. On the twelfth of the same month the Liverpool quotations were twelve shillings and four pence. On the thirteenth the brokers of San Francisco paid only one dollar and sixty cents. Thus, you will perceive, from the second to the twelfth of August, in the Liverpool market there was an advance of over fifteen cents, but in the brokerage shop not one mill.

I suggest the construction of a narrow gauge road, because it is the cheaper and more easily built.

Explore the inhabitable globe, and where can be found such a valley as this—so rich and varied in production, so vast in extent, and so admirably adapted to the cheap construction of railroads? The grade would be but a name. No swamp to trestle, but few bridges to build, and they, in dimension, would be so small when compared with those required on other roads, as to appear rather ornamental than useful. The estimate made of the cost of a narrow gauge road from Red Bluff to Benicia, a distance of two hundred and sixty miles, is one million nine hundred thousand dollars, or fifteen thousand dollars per mile. To construct this road high embankments must be thrown up a distance of over fifty miles through swamp, tule, and overflowed lands. Certainly, down this valley, where no such difficulties are to be surmounted, a road could be built at an average cost of four thousand dollars per mile. Let but fifty miles of the road be built by subscription, and it could be guaranteed with as much certainty as the changes of the season, the profits of the trade for that fifty miles will build the remainder.

Why should there be coöperation of the Farmers' Clubs for the purpose mentioned, and of the people of this valley for the construction of a railroad from Stockton to Visalia? It is because thereby agriculture becomes relieved of a tax to monopolies amounting to two thirds of the value of the crop, and protected with justice and moderation so essential to both the prosperity and vitality of the people. The saving of two thirds of the value of the crop to the farmer would place such an abundance of capital at the command of the agricultural community, that almost immediately could be accomplished that other great necessity—canals for irrigation.

The question may be asked, Are there not other industries to be protected besides agriculture? True, but agriculture is the basis of every other industry. When it is relieved of the awful and destroying incubi of monopoly which are now crushing it in its infancy; when protected from their exhausting demands, then manufacturing, and every other industry, will bound into a vigorous life, redolent of enterprising energy.

Now is beginning the realization of August Comli's theory—the tendency of the civilization of the age is to centralization. The basis of the theory was and is the colossal growth of capital and its irrepressible proneness to monopoly. Bank capital is allied to that of insurance; that of insurance to that of railroads; that of railroads to grain brokers, manufacturers, landed monopolies, and ocean tonnage—all arrayed against the tiller of the soil and the muscle of the laborer. A people for long centuries may be manacled by despotic laws and brutalized by autocratic tyranny, but man ever asserts his rights, and then comes a revolution, which, by uniting foresight and combination in the same movement, developes the highest attributes of our race, and invariably achieves the double purpose—bursting the shackles of oppression and punishing the oppressor. The revolution of our era and country will be industrial, not political—not of a people frenzied by the goad of tyrants, but industry contending for its just reward against the heartless exactions of centralized wealth.

These lights are not more visible to you than are certain evils which oppress industry and threaten to destroy the nation's prosperity and republican institutions, if not remedied. You can remedy the local evils. Let it not be said you are incapable of uniting the faculties of foresight and combination necessary to wield the great means in hand for your industrial prosperity and political protection. It is to be hoped, to accomplish the purpose suggested, such means will be speedily inaugurated as will vindicate our character for enterprise, and by so doing, prove we esteem industrial rights and love political liberty.

TRANSACTIONS

OF THE

Sonoma and Marin District Agricultural Society,

FOR

THE YEAR 1872.

REPORT.

To the State Board of Agriculture of the State of California:

The Directors of the Sonoma and Marin District Agricultural Association herewith present their annual report for the year eighteen hundred and seventy-two.

The year has been one of prosperity to the society, although this region of the State has not been as productive as in former years. Still, the exhibition of farm products and stock at our exhibition this year was equal to that of any former year.

We have no special report to make of any new industry or source of wealth for the present year.

The following exhibit will show our financial condition:

FINANCIAL REPORT.

Date.	On what account.	Amount.
1872.	RECEIPTS.	
May	Collection for May picnic	$47 50
Sept. 6	P. Young	50 00
"	Citizens' premiums	206 50
"	C. Blackburn, rent of fruit stand at pavilion	60 00
"	Rent of fruit stand at amphitheater	33 00
"	A. Boehl, rent of restaurant	99 00
"	Rent of bar	405 00
"	Rent of space for "air gun"	25 00
"	Rent of space for "Yankee notions"	25 00
"	Robert Watt, life membership	25 00
"	H. T. Fairbanks, life membership	25 00
"	T. B. Carey, balance on life membership	21 50
"	James Clark, balance on life membership	21 50
"	License for selling air balloons	1 50
"	William Bihler, balance on life membership	21 50
"	Entrances to races	575 00
"	W. Hill, citizens' premium	5 00
"	G. Watson, life membership	25 00
"	Rent of Pavilion to Swiss	37 50
"	State warrant	2,000 00
Sept. 9	Receipts at Fair Grounds	379 00
Sept. 10	Receipts at Fair Grounds	720 70
Sept. 11	Receipts at Fair Grounds	810 20
Sept. 12	Receipts at Fair Grounds	1,069 10
Sept. 13	Receipts at Fair Grounds	738 65
Sept. 14	Receipts at Fair Grounds	389 80
Sept. 16	B. Haskell, life membership	25 00
	Total receipts	$7,841 95

Date.	On what account.	Amount.
1872.	DISBURSEMENTS.	
August 22	Balance overdrawn on treasury	$850 00
"	Discount	100 00
Sept. 2	McNear & Brother, insurance	58 60
Sept. 7	James F. Faris, repairing track	20 00
"	Mary Watson, premium for horseback riding	10 00
"	Spirit of the Times, advertising	40 00
Sept. 10	George Walker, music	200 00
"	W. D. Freeman, premium	5 00
"	Jennie Symonds, premium	3 00
"	William Gibson, premium	13 50
"	Cash paid for purses	215 25
Sept. 11	Cash paid for purses	225 00
Sept. 12	Cash paid for purses	295 00
Sept. 13	Cash paid for purses	150 00
Sept. 14	Cash paid for purses	325 00
"	Premiums paid at grand stand	321 00
Sept. 16	B. F. Conley, premium	7 00
"	Mrs. Lew. Miller, premium	3 00
"	Grover & Brother, bill of merchandise	50 50
"	J. Grover, Secretary	200 00
"	J. M. Rose, hay	321 00
"	N. M. Hedges, labor	30 00
"	O. Smiley, labor	17 50
"	J. Grover, bill of items paid out	57 50
"	N. M. Hedges, labor	62 00
"	L. C. Malott, premium	10 00
"	S. Daniels, premium	76 00
"	Robert Looney & Co., premium	5 50
"	D. Finch, premium	3 00
"	I. P. Rodehaver, straw	87 25
"	J. R. Wilson, selling tickets	24 00
"	James Elder, Assistant Secretary	18 00
"	Arthur Shattuck, Assistant Secretary	15 00
"	Platt Gilbert, ticket seller	18 00
"	William Kane, labor	2 50
"	William Bihler, premium	17 00
"	Frank Meecham, premium	5 00
"	M. Berger, premium	12 50
"	Mrs. H. L. Doane, premium	5 00
"	S. Daniels, premium	52 00
"	D. Stewart, premium	23 00
"	Gwynn & Brainerd, premium	45 50
"	Frank Trefren, premium	2 00
"	A. W. Thompson, cart and harness	40 00
"	E. R. Harms, labor	66 00
"	Haskins & Prescott, use of plates	9 00
"	G. F. Allen, bill of merchandise	8 86
"	William B. Haskin, bill of merchandise	21 16

Date.	On what account.	Amount.
Sept. 16	Cox & Pierce, bill of merchandise	$5 75
"	Whitney & Fairbanks, merchandise	4 30
"	H. C. Taft & Co., ribbons	2 25
"	P. Cowen, stationery	17 27
"	Henry McClere, premium	2 50
"	J. P. Rodehaver, premium	8 00
"	Zartman & Co., premium	73 00
"	Charles Blackburn, premium	3 00
"	William Hill, premium	10 00
"	Miss M. Lynch, premium	6 00
"	Lightner & Cox, draying	2 50
"	Lee Ellsworth, lumber	327 07
"	J. G. Howell (R. R. Flag), advertising	45 00
"	T. L. Thompson (Santa Rosa Democrat), advertising	30 00
"	Francis & Henning (Napa Register), advertising	10 00
"	Montgomery & Co., Napa Reporter, advertising	12 00
"	A. Montgomery & Co., advertising	20 00
"	Charles Fuller, premium	3 00
"	H. Meecham, premium	24 00
"	J. R. Rose, premium	66 00
"	John Judson, premium	26 00
"	Miss A. Price, premium	1 00
"	J. Whittier, premium	6 00
"	Luella Miller, premium	2 50
"	F. M. Spaulding, night watch	18 00
"	John Swartz, night watch	18 00
"	Stacey & Moch, brooms, etc	2 65
"	Morning Call, advertising	18 00
"	J. P. Backus, Cloverdale Bee, advertising	20 00
"	James F. Faris, labor on track	69 00
"	Telegrams	4 10
"	Mrs. A. B. Derby, premium	15 50
"	F. W. Lougee, premium	2 00
"	P. C. Murphy, premium	3 00
"	Miss J. B. Denman, premium	1 00
"	Mrs. A. Morris, premium	3 00
"	W. H. Pepper, premium	70 50
"	U. P. Merritt, premium	3 00
"	F. W. Lougee, expenses to Sacramento	19 50
"	E. Denman, expenses to Sonoma	4 00
"	James Dumont, labor	35 00
"	Petaluma Crescent, advertising	90 00
"	Weston, Scudder & Co., Argus	142 40
"	J. Pfern, board of horses	7 00
"	George Ross, premium	8 00
"	Mrs. William B. Haskin, premium	3 00
"	Miss Rosanna Haskin, premium	3 00
"	Miss Mary Cramer, premium	14 00
"	O. Hubbell, premium	3 00

Date.	On what account.	Amount.
Sept. 16	S. A. Nay, premium	$4 00
"	Emma Weir, premium	7 00
"	Miss Ida Brown, premium	2 00
"	J. A. Cadwell, watchman	15 00
"	Pat. Ward, labor	28 75
"	John Ray, labor	17 50
"	Andrew Henry, Wells & Fargo	1 50
"	E. L. Brooke, premium	3 00
"	S. S. Nolan, premium	4 00
"	J. G. Dow, premium	7 50
"	Mrs. H. Anderson, premium	3 00
"	Miss Mary Warren, premium	3 00
"	Miss Rina Shattuck, premium	5 00
"	George Carey. premium	2 00
"	Miss Flora Towne, premium	5 00
"	A. Cadwell, premium	5 00
"	T. Donnelly, draying	1 00
"	J. S. Roberts, labor	15 00
"	Charles Orfit, labor	30 00
"	John Donnelly, labor	12 50
"	Zartman & Co., repairs	61 25
"	D. Winters, labor	3 75
"	Bowman & Bro., repairing pumps	18 60
"	M. Reikent, labor	14 00
"	B. Haskell, Superintendent Pavilion	60 00
"	Mrs. H. B. Hasbrouck, premium	8 00
"	Miss O'Gorman, premium	5 00
"	Miss Louisa Brown, premium	1 00
"	Mrs. McCurdy, premium	6 00
"	Mrs. Robert Fowler, premium	8 00
"	Robert Crane, premium	22 00
"	Mrs. Joseph Gibbs, premium	6 00
"	Joseph Purrington, premium	18 00
"	John Gherking, labor	12 50
"	N. O. Stafford, labor	15 00
"	Frank Trefren, labor	15 00
"	W. L. Hunter, labor	12 50
"	C. Kubie, labor	2 15
"	Harter & Co., labor and repairs	2 00
"	Journal and Argus, printing	13 00
"	T. T. Unckless, hire of teams	127 00
"	H. Primm, labor	7 50
"	T. Maguire, chloride of lime	50
"	Ben. Wilson, posting bills	1 50
"	William Gherkin, labor	15 00
"	M. Gillam, premium	2 00
"	C. W. Burztorf, premium	5 00
"	J. M. Bowles, premium	2 00
"	Miss Aggie Redman, premium	2 50

Date.	On what account.	Amount.
Sept. 16	Mrs. B. Pickett, premium	$2 00
“	Joseph Gibbs, premium	2 50
“	S. A. Nay, premium	2 00
“	W. S. M. Wright, premium	15 00
“	Porter Ward, premium	15 00
“	G. Watson, hire of horse for Marshal	40 00
“	Jerome A. Barney, advertising	20 00
“	Interest	165 75
“	Lee Ellsworth, repairing Pavilion	21 30
“	Washing and draying	3 25
“	A. McFarland, whitewashing	3 00
“	Stacey & Mock, use of flags	5 50
“	Interest	300 00
“	San Francisco Chronicle	24 00
“	Isaac Fuller, barrel	2 00
“	B. Haskell, sundries	1 25
“	Payment on debt of society	1,050 00
“	N. Carriger, premium	25 00
	Total	$7,764 96

RECAPITULATION.

Total receipts	$7,841 95
Total disbursements	7,764 96
Balance on hand	$76 99

ANIMALS EXHIBITED AT THE FAIR GROUNDS.

HORSES, CATTLE, SHEEP, AND SWINE.

S. Daniels, Lakeville—Twenty-five head of horses, all the colts by General McClellan, and the latter heading the list: Slatin, bay filly, two years old; Joe Dake, four years old, out of Fairy Queen, bright bay; also, eight four-year-olds; Drift, four years old, stallion, dark chestnut; iron-gray, four years old; Yellow Jacket, six years old, full sister to Coghlan; Cornelia, four-year-old bay, dam, Buttermilk Sal; Poison, five-year-old sorrel gelding, dam, the Judge McGee mare; pair of matched sorrel geldings; Copenhagen, two-year-old chestnut; Lady Franklin, thoroughbred mare by Lawyer, out of Jenny Walker, with colt by McClellan; three mares and McClellan colts; Jennette, by Woodburn, out of Esperanza; Esperanza, thoroughbred mare; Sybella, by imported Scythian, thoroughbred.

S. Daniels—Ten head pure Devons—two bulls, five cows, three calves.

Kenny & Bro.—Johnny Walsdon, six-year-old sorrel stallion, by General McClellan, out of a Billy Blossom mare.

Mr. Bihler—Mare and colt, England's Glory stock.

Dan. Brown—Alice Daniels, seven years old, by George M. Patchen, out of a Shakespeare mare.

J. R. Rose—Ten head of pure Devon stock: Bloomfield, seven-year-old bull; Phil. Sheridan, three-year-old bull; Tecumseh, two-year-old bull; General Grant, two-year-old bull; Sonoma, yearling bull; Curly, four-year-old and over cow; Maud, four years old, with calf; Curly 3d, two years old; and Nellie, one year old.

James Laughlin—Sucking colt, and cow.

F. Wunger—Three-year-old bull.

A. Cadwell—Double-team, and four Spring lambs.

G. R. Perkins—Mare Nellie and sucking colt.

William Edminster—Mare Flora, five pigs.

J. S. McCue—Three-year-old gelding Broomcorn; saddle horse Silverheels; single buggy horse, Olin.

John Powell—Cow and calf.

Henry Hinebaugh—One-year-old stallion Ottawa Boy; mare Dolly.

B. B. Munday—Mare, Lady Lummix, and colt, Pharris; mare, Nelly Vaughn, and colt, Jenny Bihler.

Thomas Sherry—Colt, Polly A. Pollock.

W. P. Hinshaw—Stallion, Jesse Goldfinder; stallion, one year old, General Goldfinder; colt, Nellie Goldfinder; stallion, two years old, Prince; saddle horses, Little Kittie and White Frank.

H. Stockdale—Mare, Blackbird; Mare, one year old, Twinkle; colt, Surprise.

T. B. Cary—Stallion, two years old, American Star; pair of game fowls.

James Watson—Stallion, two years old, Monitor.

D. Stewart—Bull, three years old, Athol Duke; calf, Dutchen; stallion, two years old, Captain; Essex boar, Essex sow, and five hogs.

W. S. M. Wright—Berkshire boar, California Bill; Berkshire sow, Pioneer; four pigs; two mares, Kitty and Dolly.

Thomas W. Ingram—Stallion, three years old, Propeller.

William White—Chester boar, Chester sow, four pigs, three graded pigs.

William D. Bliss—Four-year-old stallion, Shasta; stallion, two years old, Orion; two colts, Speedwell and Mayday; Alderney calf.

Robert Crane—Mare, Belle; colt, Market; four cows and bull, fat hog, two pair of ducks, pair of Guinea fowls.

J. P. Clark—Boar, sow, three pigs.

D. S. Dixon—Bull, Scott.

Richard H. Crane—Three-year-old Durham bull Sherman; two cows, Peachy and Nellie; three-year-old cow, Star; calf, Major; and graded boar, Perry.

M. Gillam—Jack, Cassius M. Clay; and horse, George IV.

John Greening—Hog with six feet.

Peter Ward—Bull, San Antonio, and one calf.

C. Vaughn—One calf.

W. H. White—One stallion, one year old, Billy Bryant.

A. Cramer—Stallion, Cache Creek.

Dr. W. R. Wells—Double turnout of fine black horses.

J. Rodehaver—Buck, Alexander; colt, Bonita.

O. Allen & Son—Durham yearling, Nymph.

Charles McDevitt—Stallion, General Grant; stallion, Black Warrior; mare, Fannie; stallion, Fenian Chief.

Page Brothers—Yearling mare, Anita; Durham bull, Prince; Durham bull, three years old, Sultan; Durham cow, Lady Jane; Durham calf, Cotate; cow, Maggie; calf, one year old, Kittie, two French Merino bucks, three French Merino ewes, eight graded lambs, and boar, Polo.

William Hill—Two Spanish Merino bucks, three Spanish Merino ewes, Berkshire sow, Betsey Saxe.

J. A. McNear—Double-team of roadsters.

B. M. Fetter—Yearling colt, Star of the West.

D. Finch—Mare, Kit, and sucking colt.

John Hamlete—Yearling stallion, Robert Kelly; mare, Julia.

J. B. Redmond—Durham bull, Lalla Rookh; Durham cow, Novata Queen; Durham cow, three years old, Bertha; Durham cow, two years old, Bertha; Durham cow, one year old, Novata Queen; Durham calf, Novata Queen; Durham bull-calf, Victor; Durham bull-calf, Prime Minister.

George Watson—Durham bull, one year old, Dick.

Pat. Carroll—Durham bull-calf, Young Chief.

Richard Harris—Yearling bull, June.

Robert Crane—Southdown buck and four lambs, graded.

John Crawford—Three-year-old mare, Messenger Maid.

S. Jewett—Six Spanish Merino bucks, six Spanish Merino ewes.

George Berry—Stallion, George.

P. Henley—Bull, two years old, George.

John Pharris—Stallion, four years old, Sonoma Boy.

R. H. Pharris—Stallion, Butcut, and colt.

Harry Mecham—Mare colt, Mary; stallion, Pollock; colt, Dolly Varden; Spanish Merino buck, Bismarck; Cotswold buck, General Grant, and four lambs.

Frank Mecham—Saddle horse, Jim.

Daniel Brown—Buggy horse, Alice Daniels.

Pat. Mullally—Cow, Sally; calf, Sam.

Pat. Carroll—Stallion, three years old, Emmet; mare, one year old, Kate.

O. F. Westover—Mare, Kate, and colt, Lady.

William Bihler—Stallion, three years old, Charles Augustus; mare, four years old, and colt.

H. L. Upton—Two-year-old mare, Liberty.

J. S. Snodgrass—Saddle horse, Lute Bill.

O. Hubble—Two-year-old Durham bull, Harrold.

James Watson—Saddle horse, Mollie.

W. S. M. Wright—Spanish Merino buck.

John Hudson—Three-year-old Durham heifer, Rosa Belle; three-year-old Durham bull, Grand Turk; bull calf, Harrold; graded cow, Beauty; graded calf, Indian Chief; three Cotswold ewes, one Cotswold buck, three graded ewes, three light Brahmas, three dark Brahmas, three buff Cochins, three golden Polands.

A. Cadwell—Best double-team owned and used by one person.

F. Hastings—Saddle horse, Coal-oil Tommy.

ARTICLES EXHIBITED AT THE PAVILION.

GRAIN, FLOUR, ETC.

Samuel Purrington, of Green Valley, exhibits a sack of buckwheat.

J. B. Dow, of Healdsburg—Sack of sugar-beet seed.

O. Hubble, of Tomales—Sack of seed grass, cleaned, and one sack of mesquit grass seed in the chaff, and sack of wheat.

D. Stewart, of Lakeville—Sack of wheat.

Joseph Purrington, Green Valley—Sack of wheat.

H. P. McCleare, Two-Rock Valley—Sack of Egyptian wheat, sack of white Norway oats, sack of Swedish oats, package of white Oregon wheat, and package of white Australian wheat.

J. P. Rodehaver, Petaluma—Sack of oats.

N. Wiswell—Sack of Smith wheat.

McCune Brothers, Central Mill, have a fine exhibit of flour and corn meal.

VEGETABLES.

William Gibson, Petaluma, presents four varieties of beets, among the rest some sugar beets, the seed of which was furnished him by the Alvarado Beet Sugar Company this season. He also has rutabagas, half a dozen large squashes, two large watermelons, and sweet and pop corn; the seed of the former he received last year from Massachusetts; also the white Belgium carrots.

J. G. Dow, of Healdsburg, makes a fine display of potatoes, having on exhibition no less than seven varieties. Among the best are early blue, pink-eyes, neshanics, Indianas, premiums, Democrats, and excelsiors.

O. Hubble, of Tomales, sack of staker russet potatoes.

B. B. Munday, of Petaluma, some mangelwurzel and sugar beets.

J. M. Bowles, display of squashes, some of which are as large as cartwheels.

L. G. Ney, Petaluma, several different varieties of squashes.

John Powell, Vallejo Township, display of squashes.

William Bibler has a display of the finest cabbage and cauliflower that we ever saw. Also, an exhibit of blood beets.

Exhibit of squashes and sugar beets, by F. Unger, of Colima Ranch.

Exhibit of corn on stalk, by John H. Hester, of Sonoma Mountains. Stalks twelve feet high, and raised without irrigation.

Exhibit of corn on stalk, raised by H. Hennebach, Petaluma Valley.

Corn on stalk and two immense squashes, by James Laughlin, of the race-track.

Two watermelons, by Robert Crane.

LADIES' DEPARTMENT.

One piece of shell work, monument, by Miss Lizzie Wickersham, aged seven years, Petaluma.

Two pebble flower vases, by Mrs. B. Pickett, Petaluma.

Two pieces of wax work, by Miss Emma Warner, Petaluma.

Wm. B. Haskell, of the Excelsior, exhibited a few cases of boots and shoes manufactured by Hecht Bros. & Co.

Beautiful floral design, in arbor shape, by Miss Rena Shattuck, Petaluma.

Four pieces crochet work, piece worsted work, piece silk embroidery, two pieces tapestry, piece hair work, straw bracket, piece silk braiding, two pieces hand stitching, two pieces transferred work, pair woolen socks, piece bead work, by Miss E. Spaulding, Petaluma.

Three pieces embroidery, by Miss Ida Denman, Petaluma.

One crochet tidy, by Miss Ella Mills, Petaluma.

One farmer's seed wreath, worsted picture, three crochet tidies, crochet scrap bag, white bedspread, needlework, two assortments of grain, two varieties of jellies and one of pickles, by Mrs. Jos. Gibbs, Petaluma.

Two log cabin quilts and one flannel mat, by Mrs. H. Benton, Petaluma.

One beautifully wrought wax cross, in glass case, and shell frame and grass wreath, by Mrs. E. C. Jamison.

Mrs. May Cramer, of Dry Creek, has on exhibition ten varieties of needlework that are elegant.

Mrs. A. W. Barnes has two pieces of silk embroidery.

Mrs. Smith D. Towne, a boy's suit.

Miss Florie Towne, a miss seven years old, makes a good exhibit of needlework and tatting.

Mrs. F. W. Shattuck has an elegant case of transferred work on exhibition.

Miss Ida Brown has an elegant case of phantom flowers and a specimen of moss work.

Mrs. W. B. Haskell a variety of wax flowers, which are very pretty.

A drawn rug, by Mrs. J. McCurdy.

A rag mat, by Miss Louisa Brown.

Three braided rugs, and shell and pebble work, by Mrs. Pickett.

Bead work, picture of a mare, "Jake," by Mrs. Lew. W. Miller, of Bodega.

Leather frame to mirror, by Miss Rosanna Haskins, of Petaluma.

An elegant piece of tapestry work, the "Crowning of Queen Esther," by Miss Emma C. Wier.

A case of paper flowers, by Miss Marion H. McClair, of Santa Rosa.

One Bible monument, one piece of netting, one crochet tidy, one tufted cushion, one cotton embroidery, one transferred work, one piece Spanish lace, one worsted mat, and piece of tapestry, by Mrs. J. McCurdy.

One worsted picture, "St. Patrick," by Mrs. Daniel Brown.

Mrs. H. H. Cooper has a fine display of millinery goods and a case of hair work.

Mrs. H. B. Hasbrouck, of Petaluma, has on exhibit ten varieties of jellies. They are very fine.

Mrs. H. Bently, three jars of preserves and four glasses of jellies.

Mrs. H. Berger, seven glass jars of preserved fruits that look tempting, four glasses of jellies, and one bottle of catsup.

Miss Nora Smith, a jar of peach and apple butter, and one jar of blackberry jam.

Mrs. F. W. Shattuck has an exhibition of seven glasses of jellies and four bottles of preserves, that look beautiful.

Mrs. Jos. Gibbs, of Petaluma, two glasses of jellies and one can of pickles.

Mrs. J. W. Harris has eleven glass jars of preserved fruit of different varieties.

Miss Sarah H. Bentley, sponge cake.

Miss May Warren, sponge cake.

Mrs. A. B. Derby, samples of white bread and sponge cake.

Two children's dresses, Miss Mary Brown.

Four pairs gloves, U. P. Merrill.

One piece hair work, Miss Mary Blackburn.

One case hair work, Mrs. D. A. Sackett.

One piece paper work, Mrs. E. Latapie.

Three pieces moss work, Miss Mary Warren.

Three pieces drawing.

One floral design.

PREMIUMS AWARDED.

GRAIN, VEGETABLES, ETC.

Articles.	Exhibitors.	Premiums.
Best sack wheat, not less than one hundred pounds	D. Stewart	$5 00
Best sack oats, not less than one hundred pounds	J. P. Rodehaver	$8 00
Best sack buckwheat, not less than fifty pounds	Samuel Purrington	$3 00
Best sack wheat flour	McCune & Bro	$3 00
Best sack corn meal	McCune & Bro	$5 00
Best collection potatoes	J. G. Dow	$5 00
Best exhibit squashes	J. M. Bowles	$2 00
Best exhibit sugar beet	W. Gibson	$2 00
Best exhibit mangel wurzel	W. Gibson	$2 00
Best six blood beets	W. Gibson	$2 00
Best exhibit carrots	W. Gibson	$1 00
Best exhibit rutabagas	W. Gibson	$1 50
Best exhibit corn on stalk	G. Watson	$2 50
Best exhibit broomcorn	A. Doty & Co	$3 00
Best exhibit cultivated grass seed	O. Hubble	$3 00
Largest cabbage	William Bihler	$2 00
Best exhibit cauliflower	William Gibson	$1 00
Best display garden vegetables	William Gibson	$3 00
Two bales mesquit grass	William White	Spec. mention.

FRUITS, GRAPES, ETC.

Articles.	Exhibitors.	Premiums.
Largest and best collection of fruits from one nursery	W. H. Pepper	$30 00
Best exhibit apples	W. H. Pepper	$5 00
Best single variety, six apples	W. H. Pepper	$3 00
Best six varieties apples, three each	W. H. Pepper	$3 00
Best collection pears	W. H. Pepper	$3 00
Best single variety, six pears	W. H. Pepper	$2 00
Best six varieties pears, three each	W. H. Pepper	$3 00
Best six quinces	M. Gilham	$2 00
Best collection pomegranates	R. Fowler	$3 00
Best collection lemons	R. Fowler	$3 00
Best exhibit of watermelons	Robert Craine	$2 00
Best exhibit muskmelons	S. A. May	$2 00
Best exhibit Persian melons	Jos. Purrington	$2 00
Best collection grapes	Jos. Purrington	$10 00
Best collection foreign grapes	Jos. Purrington	$3 00
Best exhibit California grapes	Robert Fowler	$2 00
Largest bunch grapes	Jos. Purrington	$2 00
Best collection almonds	F. W. Lougee	$2 00

DRIED FRUITS, PRESERVES, ETC.

Articles.	Exhibitors.	Premiums.
Best exhibit canned fruit	Mrs. M. Berger	$5 00
Best exhibit preserves	Mrs. F. W. Shattuck	$3 00
Best exhibit jellies	Mrs. H. B. Hasbrouck	$5 00
Best exhibit pickles	Mrs. Jos. Gibbs	$2 50
Best exhibit catsup	Mrs. M. Berger	$2 50
Best exhibit side bacon	R. Craine	$5 00
Best exhibit family groceries	Cox & Pierce	
Best exhibit family groceries	Whitney & Fairbanks	Hon. mention.

BUTTER AND CHEESE.

Articles.	Exhibitors.	Premiums.
Best box butter	L. C. Mallott	$10 00
Best packed butter	D. Stewart	$5 00
Best cheese	I. R. Jewell	$5 00

WINES, CIDER, ALES, ETC.

Articles.	Exhibitors.	Premiums.
Best exhibit wines	N. Carriger	$15 00
Best exhibit port wine	N. Carriger	$5 00
Best exhibit red wine	N. Carriger	$5 00
Best exhibit white wine	A. S. Edward	$5 00
Best exhibit ale and beer	Connolly & Bro	$5 00
Best exhibit cider	Fred. Christlich	$2 00

REPORT.

To Hon. I. N. Hoag, Secretary of the State Agricultural Society:

SIR: The Agricultural, Horticultural, and Mechanical Society of the Northern District of California, offer the following report of transactions, list of articles exhibited, and premiums awarded, for the year ending November thirtieth, A. D. eighteen hundred and seventy-two.

Also, the receipts and expenditures of the society for said term.

FINANCIAL REPORT.

RECEIPTS.	
Cash on hand	$40 80
Donation to society	2,561 75
Single admissions to Park	1,183 00
Single admissions to Pavilion	182 50
Single admissions to Grand Stand	140 00
Quarter stretch badges	15 00
Two hundred and eleven memberships, at five dollars	1,055 00
Pool privilege at Park	440 00
Sale of lumber, etc	154 50
Entries to speed premiums	1,360 00
Reverting to society from entries to speed premiums	292 00
State appropriation	2,000 00
Total	$9,424 55
DISBURSEMENTS.	
Premiums as per list accompanying	$4,740 00
General expenses, comprising purchase of real estate, improvement of society's Park and buildings, and incidental expenses of conducting society's eleventh annual Fair, A. D. eighteen hundred and seventy-two	4,684 55
Total	$9,424 55

The society having been compelled to purchase real estate for the enlargement of their Park, and also to make extensive improvements and additions to their buildings, have labored under a disadvantage from which they will hereafter be relieved, their grounds being extensive and valuable, and the buildings and structures of every kind thereon being permanent. The total liabilities of the society not exceeding three hundred dollars, the society hope, in view of their present healthy financial condition, to be enabled hereafter to enlarge their field of operations, and increase the general usefulness of the association.

Respectfully submitted,

J. C. DONLEY, Secretary.

Marysville, November 30th, 1872.

ELEVENTH ANNUAL FAIR.

ENTRIES.

CLASS I.

Thoroughbred horses, stallions, and mares.

Sam Daniels, Butte County—Osceola, three years old; Vision, three years old.

William Harp, Butte County—Bloomsbury, eight years old.

T. Holloman, Yuba County—Harkaway, twelve years old.

Stallions.

Joseph Gluckauf—Acrobat, two years old; Lodi, Jr., one year old.

Mares.

Joseph Gluckauf, Butte County—Black Maria, fifteen years old; Pastora, seven years old; Trout, four years old; Bassolona, four years old; Antelope, three years old; Orient, three months old.

Families.

Joseph Gluckauf, Butte County—Black Maria, and five colts.

CLASS II.

Horses of all work—Stallions.

R. McEspy—Rowdy, two years old.
P. Wall—Brigham Young, eight years old.
J. M. Allenwood—Friday McCracken, eight years old.
S. S. Mitchell—Jack Neal, ten years old.
J. Hollister—Tiger, five years old.
A. P. Southworth—Indicator, eight years old.
W. W. Ashford—Red Rover, four years old.
P. Corrigan—Signal, eighteen years old.
John Seaward—Yuba, four years old.
Charles Perkins, Yuba County—Galanter, seven years old.
S. Eaton—Charion, three years old.
G. McWain—Jim Bloomsbury, one year old.
J. M. Allenwood—Dexter, two years old.

Mares.

S. S. Mitchell—Julia, six years old.

Jim McIntosh—Lady Winkler, eight years old.

John Seaward—Swamp Angel, six years old.

S. Eaton, Yuba County—Rebecca Target, with colt, four years old; Mary Fish, with colt, four years old; Mary Bell, with colt, four years old; Mollie, three years old; Lady Whipple, one year old.

Joseph Gluckauf, Butte County—Biddie, four years old.

J. M. Allenwood—Polly and colt, seven years old; Lady and colt, eight years old; Fannie, one year old; Nellie and colt, eight years old; Lucy and colt, nine years old.

Roadsters—Stallions.

John Boggs, Colusa County—Latham, seven years old.

G. McWain—Ben. Rattler.

Carriage Horses.

Thomas Mooney, Yuba County—Wash. Montgomery and Joe Bowers.

Dr. Dobbins, Sutter County—John and Dad.

CLASS VII.

Colts not thoroughbred.

P. Corregan—Mary Brittan, one year old.

S. Eaton—Irene Davis, one month old; Lady Carrigan, three months old; Jennie South, four months old; Pastor, four months old.

Joseph Gluckauf—Pastor, one year old.

G. McWain—Maggie, four months old.

A. P. Southworth—Abe, four months old.

G. McWain—Jim Bloomsbury, one year old.

J. M. Allenwood—Not less than six colts.

S. Eaton—Not less than six colts.

S. S. Mitchell—Oceola, four months old.

CLASS IV.

Roadsters and Stallions.

D. McGrath—Vindicator, four years old.

William Doaty—Billy McCracken, four years old.

William M. Thrap—Gie Snowden, four years old.

Mares.

J. M. Allenwood—Belle Friday, four years old.

Speed.

J. F. Jacobs—Dolly Varden and Sally Gorham, for double team race.

J. W. Donathan—Irene Harding.

W. Hull—Reuben and Target.

J. M. Jasper—Prussian Maid, pacer, four years old.

A. F. Smith—Highland Mary, six years old.

C. W. Mouthrop—American Maid, trotter, five years old, and Billy Mayo, eight years old, pacer.

J. Worthen—George Reno, trotter, eight years old.

T. Kimball—Belle Mouthrop, trotter, five years old.

Captain Harris—Regular, ten years old.

Draught Horses, Stallions, and Mares.

Harmon Bay—Monarch, five years old.

O. C. Hooper—Jim Porter, four years old.

CATTLE.

CLASS I.

Bulls.

R. M. Sparks—Elexis, four years old.

John McIlmoil—Duke of Sutter, two years old; and Second Duke of Sutter, two months old.

R. M. Sparks—Monkey John, four years old; Stonewall, one year old; and calf Bismarck, seven months old.

G. N. Swezy—First Duke of Yuba, three years old; Second Duke of Yuba, one year old; Butter Duke, one year old; Fourth Duke of Yuba, nine months old.

Cows.

R. M. Sparks—Miss Morgan, eight years old; Ulalie, three years old; Maggie Third, one year old; Maggie Fourth, four months old.

G. N. Swezy—Beauty, five years old; Amelia Second, four years old; Ione Second, of Yuba, two years old; First Duchess of Yuba, eight months old; Daisy, seven months old; Amelia Fourth, seven months old; Amelia Fifth, four months old; Ione Third, of Yuba, four weeks old.

John McIlmoil—Queen of May Second, one year old.

R. M. Sparks—Betty, four years old; Maggie, three years old.

C. G. Bockius—Jennie Ione, five months old.

CLASS II.

Graded Cattle—Bulls.

G. N. Swezy—Pride of Yuba, four weeks old.

Fred. Grass—Bismarck, two years old.

Cows.

G. N. Swezy—Queen, four years old; Kate, five years old.

John Bidwell—Chloe, five years old; Belle of Chico, three months old

Hogs and Pigs.

R. M. Sparks—Four hogs and pen of pigs.

FOWLS.

W. B. Ogden, of Sutter County—A lot of fowls, as follows: One pair light Brahmas; one pair dark Brahmas; one pair partridge Cochins; one trio buff Cochins; one pair Houdans.

MISCELLANEOUS.

Hill & Knaugh—Four gang plows.

B. Bigelow—Revolving showcase, containing one double-barrel shotgun, one sporting rifle, one repeating rifle and shotgun combined, two repeating rifles, one revolving-tower firearm—all California make.

G. N. Swezy—Bushel yellow corn, peck tomatoes, six large squashes, lot pumpkins, sack dry peas, lot pomegranates, lot quinces, lot pears, lot apples, lot peaches, lot green figs, lot oranges, lot seedling grapes, general display of assorted fruit, lot soft-shelled almonds, white dry wines of eighteen hundred and seventy and eighteen hundred and seventy-one, white sweet wines of eighteen hundred and seventy and eighteen hundred and seventy-one, California sherry and port wines, seven varieties table grapes, best five pounds raisins, best lot of forest trees planted in eighteen hundred and seventy-two.

W. L. Lawrence—Three sets double carriage harness, one set four-horse harness, one single Concord express harness, one set four-horse Concord harness, two single carriage harness, five California saddles, one lady's saddle, one trotting saddle, Oregent's Shaftoe saddle, six bridles and martingales, one card bits and spurs, two children's carriages, two small doll carriages.

S. D. Smith—Two-horse express wagon.

Mrs. Dr. Bobo—Lot preserves.

Miss Bobo—Lot jellies.

Mrs Dr. Dobbins, Sutter—Cotton embroidery.

P. P. Hunt, Yuba—Two side-spring wagons.

Thomas Seward, Yuba—Marble work.

Frank Lafavor, Yuba—Brooms, broomcorn.

O'Brien & Marolf, Colusa—Boots and shoes.

Hill & Knaugh, Yuba—Side-spring express wagon.

E. E. Meek, Yuba—Medley of stamps.

E. C. Ross & Co., Yuba—Two Charter Oak stoves.

S. E. Love, Yuba—Three saddle-trees.

G. L. McDaniels, Yuba—Three saddles, one bridle, one buggy robe, one set harness.

John McIlmoil, Sutter—Lot butter, ten pounds.

Hill & Knaugh, Yuba—One two-horse family carriage, one three-spring express wagon.

Miss Lizzie McDaniel, Yuba—Black crayon painting, colored crayon painting.

Mrs. Mary Pregg, Yuba—Five cotton crochet tidies, one worsted crochet lamp mat, one cotton crochet yoke, one cotton lace.

Miss Ella McMahon, Yuba—Rustic frame crayon, plain; walnut frame colored crayon and pencil sketch.

A. P. Spear, Yuba—Florence sewing machine.

Mrs. Mary E. Inlow, Tulare—One silk quilt.

Miss Minnie Seavy, Yuba—One piece of waxwork, one piece of waxwork, cross.

Miss Emma Staley—One lot pears, one cotton tidy, bedspread, one quilt.

Marysville Woolen Mills—Best display woolen goods, best ten yards woolen cloth, best ten yards cassimere, best ten yards tweed, best ten yards water-proof cloth, best ten yards flannel, best pair woolen blankets.

Frank E. Smith—Display of silverware.

A. Woods—Best assortment photographs, one portrait painting in oil, one landscape oil painting, best portrait painting in water colors, best exhibition photograph cards.

Mrs. C. F. Walker—Best painting in oil.

Mrs. Dan. McCarty—One embroidered afghan, one embroidered sofa cushion, one crochet tidy, one piece plain hand needlework, one baby buggy robe, best worsted work.

E. Hummer—One two-horse wagon.

C. J. Ripley—One lot plaster ornaments.

Mrs. William Hawley—Ten varieties of jellies, three varieties of catsup, three specimens embroidered worsted, two embroidered tidies.

Myers & Gummow—One subsoil plow, one gang plow.

J. Thompson—One lot brooms, one lot broomcorn.

Miss Ida Atchison—One hemstitched handkerchief and one baby's dress.

Isabella Hamilton—One Grecian painting, three pastel paintings, two pencil drawings, one crayon drawing, two pieces worstedwork.

General John Bidwell—One lot Indian peaches, one lot Winkfield peas, one lot Japan pears, one lot Bartlett pears, one lot Winter pears, one lot Trophy tomatoes, one lot Muscat grapes, one lot Bishop grapes, one lot Tokay grapes, one lot Black Hamburg grapes, one lot White Hamburg grapes, one lot Malaga raisins, one lot Black Morocco grapes, one lot White Nice grapes, one lot Rose Peru grapes, one lot pomegranates, one lot assorted grapes, one lot yellow cling peaches, one lot mixed late peaches, one lot Heath free peaches, one lot egg plants, one ice cream watermelon, one lot sweet potatoes, one Spanish pumpkin, one one lot drumhead cabbages.

J. Cook & Co.—Three boxes chemical soap and three boxes family soap.

Miss Mamie Walker—Two crochet mats.

Miss Louisa Aubery—One case hairwork, one pencil sketch.

Mrs. McCubbin—One lot Bartlett pears, one lot apples.

Miss Mollie Sherwood—One worsted mat.

Mrs. J. A. Staley—One loaf bread and one rusk.

Miss Lao Barnes exhibits two fine pieces of worsted work—one a sofa cushion, the other a lamp mat. From the appearance of the work she handles the needle well.

Miss Mary Gregg exhibits five cotton crochet tidies, one lamp mat, and some beautiful crochet lace.

Mrs. Dr. Dobbins has on exhibition an elegantly worked embroidery night dress.

Mrs. Ida J. Clark exhibits a handsome embroidered cotton corset cover; also, three fine dresses: one a wedding dress, one the second-day dress, and the third a traveling dress.

Mrs. D. McCarty has on exhibition a splendid lot of work, among which are a fine embroidered sofa cushion, three elegant pieces of plain needle work, a neat crochet tidy, and also a swan's-skin child's buggy robe, which contains the head, wings, and legs of a swan, and is a beautiful and tasty piece of work.

Mary Baker has on exhibition a mat made of red and white tape; an ingenious and tasty contrivance.

Miss Ida Atchison exhibits specimens of neat hemming on a baby's dress, and lace handkerchief.

Mrs. Inlow, aged eighty three years, exhibits a quilt made by herself; an elegant piece of work.

Miss Staley exhibits an elegantly worked silk quilt, which is a credit to the maker, who is only twelve years of age.

Mrs. Mart. Casad has on exhibition a wreath containing all of California's agricultural products, and is made of wax. The various specimens look natural, as if they were grown in the glass case containing them. This was one of the most attractive features on exhibition.

Miss Ida Belle Hamilton exhibits several beautiful paintings and drawings. The young lady is deserving of great credit for her elegant work.

Miss Mason and Miss Buckalew, pupils at Mrs. Poston's seminary, exhibit several pretty landscape paintings.

Mrs. M. A. Marcuse exhibits several pieces of elegant plain sewing.

Miss L. Aubery exhibits a fine piece of hair work.

Miss Mary McQuaid, of Yuba City, exhibits a very handsome wreath of hair flowers.

S. E. Love exhibits three first-class saddle-trees from his factory.

G. N. Swezy has on exhibition forty different varieties of grapes, twenty varieties of apples, eight varieties of figs, six boxes of dried figs, nine varieties of pears, a small tree bearing Chinese oranges, nine different kinds of wine of his own manufacture, and eleven large pumpkins, three of which weigh thirty pounds each, which were grown on his ranch, two miles from Marysville, on red land which has never been irrigated.

PREMIUMS AWARDED.

FIRST DEPARTMENT.

CLASS I.—THOROUGHBRED HORSES.

Exhibitor.	Residence.	Animal.	Name.	Prem.
		Stallions.		
E. W. Halloman	Yuba County.	Best stallion, four years old and over	Harkaway	$25
S. L. Daniels	Butte County.	Best stallion, three years old	Osceola	$20
J. Gluckauf	Butte County.	Best stallion, two years old	Acrobat	$15
J. Gluckauf	Butte County.	Best stallion, one year old	Lodi, Jr.	$10
		Mares.		
S. L. Daniels	Butte County.	Best mare, three years old	Vision	$15
J. Gluckauf	Butte County.	Best mare colt, under one year.	Orient	$10
		Families.		
J. Gluckauf	Butte County.	Best thoroughbred dam, with not less than five of her colts, all thoroughbred	Black Maria	$40

Judges—J. Bryden, M. Calden, G. W. Gridley.

Exhibitor.	Residence.	Animal.	Name.	Prem.
		Stallion.		
Mooney & Corrigan	....	Best stallion, other than thoroughbred, with not less than ten of his colts	Signal	$30

Committee—S. T. Brewster, G. W. Britton, S. L. Daniels.

CLASS II.—HORSES OF ALL WORK.

Exhibitor.	Residence.	Animal.	Name.	Prem.
		Stallions.		
J. M. Allenwood	Yuba County.	Best stallion, four years old and over	F. McCracken	$25
S. Eaton	Yuba County.	Best stallion, three years old	Clarion	$20
J. M. Allenwood	Yuba County.	Best stallion, two years old	Dexter	$15
G. McWain	Yuba County.	Best stallion, one year old	J. Bloomsberry	$10
		Mares.		
S. Eaton	Yuba County.	Best mare, four years old and over, with colt	Rebecca Target	$20
S. Eaton	Yuba County.	Best mare, three years old	Mollie	$10
J. M. Allenwood	Yuba County.	Best mare, one year old	Fanny	$5

Judges—George L. Jenkins, E. W. Holliman, G. H. Morris.

CLASS III.—DRAFT HORSES.

Exhibitor.	Residence.	Animal.	Name.	Prem.
		Stallion.		
O. C. Hooper	Yuba County.	Best stallion, four years old and and over	Jim Porter	$25
		Mare.		
G. McWain	Yuba County.	Best mare, four years old and over, with colt	Julia Ann	$25

Judges—Benjamin D. Harris, L. P. Crane, M. E. Calden.

CLASS IV.—ROADSTERS.

Exhibitor.	Residence.	Animal.	Name.	Prem.
		Stallion.		
E. H. Gould	Yuba County.	Best stallion, four years old and over		$25
		Gelding.		
John Boggs	Colusa	Best gelding, four years old and over	Latham	$20
		Mare.		
John Seaward	Yuba County.	Best mare, four years old and over	Swamp Angel	$20

Judges—S. L. Daniels, J. McCord, M. E. Calden.

CLASS V.—CARRIAGE HORSES.

Exhibitor.	Residence.	Animal.	Name.	Prem.
Thomas Mooney	Yuba County.	Best matched span carriage horses, owned and used as such, by one person	W. Montgomery and Joe Bowers.	$20

Judges—E. J. Lewis, S. L. Daniels, J. S. McCoy.

CLASS VII.—COLTS.

Exhibitor.	Residence.	Animal.	Name.	Prem.
J. Gluckauf		Best yearling horse colt	Pastor	$10
S. S. Mitchel		Best sucking horse colt	Osceola	$5
P. H. Corrigan		Best yearling mare colt	Mary Britton	$5
S. Eaton		Best sucking mare colt	Irene Davis	$5
S. Eaton		Best exhibit of not less than six colts, owned by one person, of any age or sex		$20

Committee—G. W. Gridley, J. M. C. Jasper, G. E. Chittenden.

CLASS VIII.—SWEEPSTAKES.

Exhibitor.	Residence.	Animal.	Name.	Prem.
Mooney & Corrigan	Yuba County.	Best stallion, of any age	Signal	$50
J. Gluckauf	Butte County.	Best mare, of any age	Antelope	$30

Judges—W. W. Burditt, E. J. Lewis, S. L. Daniels.

CLASS I—THOROUGHBRED CATTLE.

Animals.	Exhibitors.	Premiums.
Bulls.		
Best bull, four years old and over, Monkey John	R. M. Sparks	$20
Best bull, three years old and over, First Duke of Yuba	G. N. Swezy	$20
Best bull, two years old and over, Duke of Sutter	John McIlmoil	$10
Best bull, one year old and over, Second Duke of Yuba	G. N. Swezy	$10
Best bull calf, Bismarck	R. M. Sparks	$5
Cows.		
Best cow, four years old and over, Beauty	G. N. Swezy	$15
Best cow, three years old and over, Ulalie	R. M. Sparks	$15
Best cow, two years old and over, Ione 2d of Yuba	G. N. Swezy	$10
Best cow, one year old and over, Maggie 3d	R. M. Sparks	$10
Best heifer calf, First Duchess of Yuba	G. N. Swezy	$5

CLASS II—GRADED CATTLE.

Animals.	Exhibitors.	Premiums.
Bulls.		
Best bull, two years old and over, Bismarck	Frank Grass	10
Best bull, one year old and over, Pride of Yuba	G. N. Swezy	$10
Cows.		
Best cow, four years old and over, Queen	G. N. Swezy	$15
Best heifer calf, Belle of Chico	John Bidwell	$5
Cow	R. M. Sparks	Special rec'd.
Cow, Chloe	John Bidwell	Special rec'd.

CLASS III—SWEEPSTAKES.

Animals.	Exhibitors.	Premiums.
Best bull of any age or stock, Monkey John	R. M. Sparks	Fra'd diploma and $40
Best cow of any age or stock, Beauty	G. N. Swezy	Fra'd diploma and $40
Best bull calf, Bismarck	R. M. Sparks	$20

Committee—M. L. Chandler, E. C. Singletary, E. H. Gould.

CLASS I—FINE-WOOL SHEEP.

Animals.	Exhibitors.	Premiums.
Best ram, two years old and over, Silver Drop	G. E. Chittenden	$15
Best ram, under two years old, Sam. Jewett	G. E. Chittenden	$10
Best five ram lambs	G. E. Chittenden	$15
Best three ewes, two years old and over	G. E. Chittenden	$15
Best three ewes, under two years	G. E. Chittenden	$10
Exhibit of fine-wool rams and ewes	J. H. Glide	Diploma.

CLASS II—LONG-WOOL SHEEP.

Animals.	Exhibitors.	Premiums.
Best ram, two years old and over, Prince	Thomas Brewer	$15
Best five ram lambs	Thomas Brewer	$15
Best three ewes, under two years	Thomas Brewer	$10

SWEEPSTAKES.

Animal.	Exhibitor.	Premium.
Best ram of any age or breed	Thomas Brewer	$20

Committee—George Gridley, D. E. Knight, William P. Harkey.

SWINE.

Animals.	Exhibitors.	Premiums.
Best boar, Toranto	R. M. Sparks	$15
Best breeding sow, Betty	R. M. Sparks	$15
Best pen of pigs, of any age or breed	R. M. Sparks	$15

Committee—George Gridley, D. E. Knight, William P. Harkey.

POULTRY.

Animals.	Exhibitors.	Premiums.
Coop of buff Cochins	Wm. B. Ogden	...Special rec'd.
Coop of light Brahmas	Wm. B. Ogden	...Special rec'd.
Coop of dark Brahmas	Wm. B. Ogden	...Special rec'd.
Coop of partridge Cochins	Wm. B. Ogden	...Special rec'd.
Coop of Houdans	Wm. B. Ogden	...Special rec'd.

Committee—G. N. Swezy, D. E. Knight, Joseph Chambers.

MISCELLANEOUS.

Articles.	Exhibitors.	Premiums.
Best grain separator	Best & Brown	Society's silver [medal.
Best subsoil plow	Myers & Gummow	$10 00
Best two-gang plow	Hill & Knaugh	$20 00
Best farm wagon for general purposes	J. K. Hummer	$10 00
Best farm gate	A. Parker	$5 00
Best express wagon	S. D. Smith	...Special prem.
Machine for bluestoning wheat	Best & Brown	...Special prem.
Ten yards woolen cloth	Marysville Woolen Mills	$10 00
Ten yards cassimere	Marysville Woolen Mills	$10 00
Ten yards tweed	Marysville Woolen Mills	$5 00
Ten yards water-proof	Marysville Woolen Mills	$10 00
Ten yards flannel	Marysville Woolen Mills	$5 00
One pair woolen blankets	Marysville Woolen Mills	$10 00
Best ornamental needlework	Mrs. Dan. McCarty	$3 00
Best embroidered sofa cushion	Mrs. Wm. Hawley	$3 00
Best piece rag carpet	J. A. Staley	$5 00
Best tatting collar	Mrs. Marcuse	$2 00
Best chinchilla embroidery	Mrs. Marcuse	$3 00
Best variety linen embroidery	Mrs. Dr. Dobbins	$5 00
One cotton tidy bedspread	Miss Emma Staley	$5 00
One silk quilt	Mrs. Mary Inlow	$5 00
Best patchwork quilt	Mrs. M. J. Woods	$5 00
Best child's afghan	Mrs. Dan. McCarty	$5 00

MISCELLANEOUS—Continued.

Articles.	Exhibitors.	Premiums.
The Committee recommend special premiums for articles not enumerated in premium list, as follows:		
For specimens of cotton crochet	Miss Mary Gregg	$3 00
One worsted tidy	Miss Mollie Sherwood	$2 00
Best display of saddle-trees	S. E. Love	$5 00
Best set farm harness	W. L. Lawrence	$5 00
Best set carriage harness	W. L. Lawrence	$5 00
Best saddles and bridles	Geo. L. McDaniels	$5 00
Best display of boots and shoes	O'Brien & Marolf	Fram'd dipl'ma
Best specimen hair work	Miss Louisa Aubery	$5 00
Best specimen of wax flowers	Mrs. E. J. Scott	$5 00
Best specimen of wax fruit	Mrs. M. R. Casad	$5 00
Best cooking stove for wood	E. C. Ross & Co	$5 00
Exhibit of furniture	Dufficy & Co	$10 00
Best double-barreled shot gun	Benj. Bigelow	$5 00
Best sporting rifle	Benj. Bigelow	$5 00
Best display of soap	James Cook & Co	Fram'd dipl'ma
Best display of silverware	Frank E. Smith	$10 00
Display stoneware, glass, and queensware	E. C. Ross & Co	Spec'l mention.
Best collection illustrating California ornithology	A. Peri	$10 00
The greatest number of useful forest trees, planted in permanent plantation during the year, in good growing condition	G. N. Swezy	$20 00
Best twelve carrots	C. G. Bockius	$1 00
Best specimen drumhead cabbage	John Bidwell	$1 00
Best six marrow squashes	G. N. Swezy	$1 00
Best and largest pumpkin	John Bidwell	$3 00
Best mountain sweet watermelon	John Bidwell	$1 00
Best half peck peas, dry	G. N. Swezy	$2 00
Best three purple egg plants	John Bidwell	$1 00
Best varieties of catsup	Mrs. William Hawley	$3
Best and largest varieties of jelly in glass	Mrs. William Hawley	$10
Best and largest varieties preserves in glass	Mrs. Dr. Bobo	$10
Best domestic wheat bread	Mrs. William Hawley	$5
Best exhibition broom corn, brooms, and brushes	J. T. Lefavor	Diploma.
Best exhibition broom corn, brooms, and brushes	J. Thompson	Diploma.
Best ten pounds butter in rolls	John McIlmoil	$5
Best display of apples	S. Blodgett	$15
Best twelve varieties apples	G. N. Swezy	$7
Best six varieties apples	G. N. Swezy	$5
Best three varieties apples	C. G. Bockius	$2
Best display of pears	C. G. Bockius	$15
Best three varieties pears	John Bidwell	$2
Best display of peaches	John Bidwell	$10
Best one variety peaches	John Bidwell	$3
Best green figs	G. N. Swezy	$3
Greatest number and best specimen oranges	G. N. Swezy	$5
Best general display of fruit, embracing best and greatest varieties	G. N. Swezy	$25
Best ten pounds dried figs	G. N. Swezy	$5
Best portrait painting, in oil	A. Woods	$5
Best specimen landscape, in water colors	Miss Ella McMahon	$3
Best specimen fruit painting	Miss Lizzie McDaniels	$3
Best exhibition of pictures by California artists	A. Woods	$30
Best exhibition photographs	A. Woods	$3
Best exhibition crayon drawing	Miss Louisa Aubery	$3

MISCELLANEOUS—Concluded.

Articles.	Exhibitors.	Premiums.
Best white wine, vintage 1870	G. N. Swezy	$3
Best red wine, vintage 1870	G. N. Swezy	$3
Best California port wine	G. N. Swezy	$3
Best California sherry wine	G. N. Swezy	$3
Best six varieties table grapes	G. N. Swezy	$5
Best one variety table grapes	G. N. Swezy	$2
Best six varieties wine grapes	G. N. Swezy	$5
Best five pounds raisins	G. N. Swezy	$3
Exhibition of marble work	Thomas Seaward	Special ment'n.
Exhibition of marble work	T. W. McCready	Thanks of Soc'y
Exhibition of ornamental plaster	J. C. Ripley	Thanks of Soc'y
Assortment of pictures	Miss Belle Hamilton	Spec'l premium
Child's knit bedspread	Mrs. A. S. Smith	
Lamp stand mat	Miss Lao Barnes	
Display of gents' clothing and gloves	E. Cohn & Co.	
Exhibition of sewing machines and work	Agent Florence Sewing Machine	Thanks of Soc'y

The above is a full, true, and correct list of premiums awarded at the annual Fair of the Agricultural, Horticultural, and Mechanical Society of the Northern District of California, for the year A. D. eighteen hundred and seventy-two.

J. C. DONLEY, Secretary.

TRANSACTIONS

OF

The Upper Sacramento Agricultural Society,

FOR

THE YEAR 1872.

REPORT.

The Upper Sacramento Agricultural Society may properly date its existence from March, eighteen hundred and sixty-seven, when the first organization took place, under the name of "The Butte County Agricultural Society." Two Fairs were held—eighteen hundred and sixty-seven and eighteen hundred and sixty-eight—and so largely patronized by the enterprising of surrounding counties, that, at the annual meeting, in May, eighteen hundred and sixty-nine, it was determined to open the door to all, making the invitation broad enough to enable as many as possible, from far and near, to avail themselves of the opportunity to coöperate in the benefits to be derived, by changing the organization into a district society, and assuming the name of "The Upper Sacramento Agricultural Society."

Exhibitions have been held in the Town of Chico every year from the beginning. That they have all been successes in the fullest extent of the term, we are not prepared to affirm. That they have been of benefit far beyond their cost in dollars or our ability to estimate, by kindling a spirit of enterprise and emulation, and by the renewal of old friendships and the formation of new, and the knowledge mutually increased, none will deny. That mistakes have been made, and that evils exist which require to be remedied, we admit; to some of which, if time permit, allusion may be made. It may be proper, in fact, to now mention one of the mistakes made, and it is this: the society became involved in debt. It was bad management, of course, but no matter. The transactions which the law of March twenty-first, eighteen hundred and seventy-two, requires, would not be complete without stating in general terms at least the condition of affairs at the time of our annual election in May, eighteen hundred and seventy-two, when the present Board of Directors, who serve till May, eighteen hundred and seventy-four, was chosen. At that date, the society was owing, in round numbers, eight thousand dollars.

OFFICERS OF THE SOCIETY.

PRESIDENT.

JOHN BIDWELL	Chico.

VICE PRESIDENTS.

HARMEN BAY	Chico.
T. F. MILLER	Chico.

TREASURER.

AUG. H. CHAPMAN	Chico.

SECRETARY.

GEO. J. BOURNE	Chico.

BOARD OF DIRECTORS.

Squire Garner	Chico.
John R. Perkins	Chico.
M. Wick	Oroville.
J. M. Hoyl	Chico.
Joseph Gluckauff	Oroville.
J. W. B. Montgomery	Chico.
Wm. Sharkey	Chico.
Geo. W. Dorn	Chico.
John B. Swearingen	Chico.
Richard McEnespy	Chico.
Wm. M. Thorp	Chico.
Isaac R. Bennett	Chico.
R. H. Thomas	Tehama.
H. A. Rawson	Red Bluff.
H. C. Wilson	Tehama.
E. C. Singletery	Princeton.
John Boggs	Princeton.
A. Calden	Princeton.
J. J. Bell	Shasta.
James D. Byres	Susanville.
Job. T. Taylor	Taylorville.

SIXTH ANNUAL FAIR.

ADDRESS TO THE FARMERS, MINERS, MECHANICS, STOCK RAISERS, WINE GROWERS, AND PRODUCERS OF NORTHERN CALIFORNIA.

Encouraged by the appropriation of two thousand dollars for premiums, it was decided to make an appeal to the people, and the following are the material portions of that appeal:

Chico, July 19, 1872.

The Upper Sacramento Agricultural Society, at its regular meeting in May, elected the preceding officers for the current fiscal year. The rules of the society's organization require the holding of an annual Fair in the Town of Chico. The time has been fixed, namely: to begin Tuesday, October first, eighteen hundred and seventy-two.

We will not entertain a doubt, because we know that, sustained by your coöperation, success will be certain. But, whatever may seem to lie in the way to success, it becomes our duty as officers to point out, and, if possible, remove. The situation is imperative, as you will see when we tell you the liabilities of the society are over eight thousand dollars, of which nearly four thousand dollars are secured by mortgage on the pavilion block. We appeal, first, to the creditors of the society—except those holding the mortgage—and to the people of Chico and its immediate vicinity, to wipe out at one sweep, by donation, all this debt, except the mortgage. The way will then be clear, and not till then. If all will help, the burden will be light upon all. We can say, with all confidence, that no reason exists which cannot be removed, to prevent the society from making its coming Fair not only a credit to the enterprise of the region represented, but an occasion of surpassing interest and mutual benefit.

The district which it is proposed to bring together in peaceful rivalry is vast in extent; bold, beautiful, and varied in its outlines; boundless in resources; comprehended on the east, north, and west by Nevada, Oregon, and the Coast Mountains; ample, when developed, to sustain a million of inhabitants. We desire, as officers of your society, to realize your fondest expectations, and make your exhibition in all respects worthy of your support. Our premium list will be unusually liberal for a district society. We promise to give our time and best exertions to the cause, without hope of fee or pecuniary recompense. We promise that every premium awarded shall be paid at or before the close of the Fair We hold ourselves personally responsible for every debt we incur. We promise that the two thousand dollars wisely appropriated by the State shall be reserved and sacredly set apart for the payment of premiums, and to add to it as largely as the strictest economy will enable us to do. The response we hope to receive at your hands will enable us to do this, and to have something remain—considerable we shall trust—to pay off a slice of the mortgage.

Let any one be careful how he pleads inability, when the circus can rake out of almost any town from one thousand to fifteen hundred dollars in a single night.

To save expense and time, all who can are requested to send or hand the amount, at their earliest convenience, to the Secretary, who will acknowledge the same by inclosing a certificate of membership duly executed. A committee will wait on those more convenient—for, if possible, all shall have a chance to contribute, and none be intentionally slighted.

We appeal, thirdly, to everybody to come to the Fair, and to every one, who can, to bring at least something and place it on exhibition—something representative of his industry and locality. Whatever of success may have crowned former efforts, let us not be content this time with anything short of real triumph. Heretofore, neither as a community or as individuals, have we put forth but the merest fraction of our strength to show to others the capabilities of the region where we have fixed our chosen homes. Our valleys are surpassingly fertile, our mountains are stored with minerals and clothed with magnificent forests, our climate is genial, serene, salubrious; here the choicest domestic animals, and nearly all the desirable fruits and products of other lands, come to the greatest perfection. These facts we know—"let us show them to the world."

All cannot take, must not expect premiums, even where everything is excellent. But all will be benefited, and can contribute to the pleasure and benefit of each other. What we learn, social intercourse, interchange of friendly greetings, the spirit of emulation kindled on these recurring and joyous occasions, are worth vastly more than premiums. What we exhibit will be the index hand pointing to our place in the scale of enterprise; showing where we rank, and the probabilities of our future as a people; whether our district has fallen into worthy hands and is to keep step with the progress and improvements of the times.

There will probably never be a more auspicious time, everything considered, and should we not make a more than ordinary effort? What though the frost, with his icy fingers, did to some extent nip the fruit, there is enough left; the land teems with plenty; general prosperity prevails. We say, then, come one, come all—bring something, every one. We promise to spare no pains to provide room and suitable places for all you bring.

Lastly, we appeal to the press, and request the papers in Butte, Colusa, Tehama, Shasta, Plumas, Lassen, Trinity, and Siskiyou Counties to come to our aid by publishing the foregoing without charge to the society, as a matter of general interest to their readers.

In addition to the cash receipts and disbursements, as hereinafter shown, private individuals came to the relief of the society, and donated, in labor, lumber, and other material to repair and enlarge the pavilion and stock grounds, not less than two thousand dollars. Also, donations of money, warrants, and claims against the society have been subscribed (but not as yet collected) to the amount of nearly two thousand dollars toward the debts, and it is believed enough will be added thereto by the people of the district to cancel every obligation, except the mortgage (now amounting to about four thousand two hundred and fifty dollars, principal and interest), on the pavilion block. The floating indebtedness discharged, we will not permit ourselves to doubt the existence, on the part of the people of the district who have already done so much, of sufficient intelligent appreciation and enterprise to obliterate the mortgage incumbrance within another year.

PREMIUM LIST.

FIRST DEPARTMENT.

HORSES.

In this department the same animal cannot be entered more than once, except in sweepstakes.

No animal will be allowed to compete for a premium unless free from disease or blemish which can be transmitted to posterity.

CLASS 1—THOROUGHBRED HORSES.

In this class none will be permitted to compete but such as furnish a complete pedigree, tracing the entire line of descent to the English parent on the side of the sire, and at least for three generations on the side of the dam. The standard of authority for the pedigree of thoroughbred horses will be the English and American Stud Book.

Stallions.

Best three years old and over	$40 00
Best two years old	25 00
Best one year old	20 00
Best colt under one year	10 00

Mares.

Best three years old and over	$30 00
Best two years old	20 00
Best one year old	10 00
Best colt under one year	10 00

CLASS 2—GRADED HORSES.

In this class none will be allowed to compete but such as furnish satisfactory proof of a cross of either sire or dam with thoroughbreds.

Stallions.

Best three years old and over	$30 00
Best two years old	20 00
Best one year old	10 00
Best colt under one year, without reference to sex	10 00

Mares.

Best three years old and over	$20 00
Best two years old	10 00
Best one year old	5 00

Class 3—Horses of All Work.

Stallions.

Best three years old and over	$20 00
Best two years old	10 00
Best one year old	5 00

Mares.

Best three years old and over	$15 00
Best two years old	10 00
Best one year old	5 00

Class 4—Draft Horses.

Stallions.

Best three years old and over	$20 00
Best two years old	15 00
Best one year old	10 00

Mares.

Best three years old and over	$15 00
Best two years old	10 00
Best one year old	5 00

Class 5—Roadsters.

All animals competing for a premium in this department must be exhibited in harness.

Stallions.

Best three years old and over	$20 00
Best two years old	15 00
Best gelding four years old and over	20 00

Mares.

Best three years old and over	$20 00
Best two years old	10 00

Class 6—Carriage Horses.

Best matched span carriage horses, owned and used as such by one person	$20 00

Class 7—Roadster Teams.

Best double team roadsters, owned and used as such by one person	$20 00

Class 8—Saddle Horses.

Best saddle horse	$10 00

Class 9—Colts.

Free to all, except those entered as thoroughbred and graded.

Best yearling horse colt	$15 00
Best suckling horse colt	10 00
Best yearling mare colt	10 00
Best suckling mare colt	5 00

Class 10—Sweepstakes.

Open to all. In the awards in this class blood will have the preference only when in the examination all other qualifications shall be found equal.

Best stallion of any age	$40 00
Best mare of any age	30 00

CATTLE.

Class 1—Durham Cattle.

Bulls.

Best three years old and over	$30 00
Best two years old	20 00
Best one year old	15 00
Best bull calf	10 00

Cows.

Best three years old and over	$25 00
Best two years old	15 00
Best one year old	10 00
Best heifer calf	5 00

Devons, Herefords, Alderneys, Ayrshires, and Holstein cattle same premium as Durhams.

Class 2—Graded Cattle.

Bulls.

Best three years old and over	$20 00
Best two years old	15 00
Best one year old	10 00
Best bull calf	5 00

Cows.

Best three years old and over	$15 00
Best two years old	10 00
Best one year old	5 00
Best heifer calf	2 50

CLASS 3—SWEEPSTAKES.

Best bull of any age or stock	$40 00
Best cow of any age or stock	20 00

SHEEP.

CLASS 1—FINE WOOL SHEEP.

Best ram two years old and over	$20 00
Best ram under two years	15 00
Best five ram lambs	20 00
Best three ewes two years old and over	15 00
Best three ewes under two years	10 00
Best five ewe lambs	10 00

CLASS 2—LONG WOOL SHEEP.

Best ram two years old and over	$15 00
Best ram under two years	15 00
Best five ram lambs	10 00
Best three ewes two years old and over	10 00
Best five ewe lambs	10 00

CLASS 3—SWEEPSTAKES.

Best ram and ten of his lambs	$20 00
Best ram of any age or breed	15 00
Best ewe of any age or breed	10 00
Best pen of ewes of any age or breed, not less than five	15 00

CASHMERE AND ANGORA GOATS.

Best thoroughbred buck	$20 00
Best thoroughbred ewe	15 00
Best pen of five kids	10 00

SWINE.

Best boar two years old and over	$15 00
Best boar under two years	10 00
Best breeding sow	10 00
Best pen of six pigs under ten months old	5 00

POULTRY.

Best lot of white or gray Dorkins	$5 00
Best lot of black Spanish	5 00
Best lot of Poland	5 00
Best lot of Jersey blues	5 00
Best lot of Brahmas	5 00
Best lot of game	5 00
Best lot of any other distinct variety	5 00
Best lot of turkeys	5 00
Best lot of ducks—any good variety	5 00
Best lot of geese	5 00

PREMIUMS AWARDED.

FIRST DEPARTMENT.

CLASS I—THOROUGHBRED HORSES.

Animals.	Exhibitors.	Residence.	Premiums.
Stallions.			
Best three years old or over, Bloomsbury	Wm. Thorp	Chico	$40 00
Mares.			
Best three years old and over, Nettie Brown	J. C. Tyler	Tehama	$30 00

CLASS II—GRADED HORSES.

Animals.	Exhibitors.	Residence.	Premiums.
Stallions.			
Best three years old and over, Frank Tallman	A. J. Starling	Nord	$30 00
Best one year old, Tuckahoe	J. L. Griffith	Chico	$10 00
Best colt, under one year, Clinton	J. T. McIntoch		$10 00
Mares.			
Best three years old and over, Nellie	John Thompson	Quincy	$20 00
Best two years old and over, Emily	Samuel Ogden	Chico	$10 00

CLASS III—HORSES OF ALL WORK.

Animals.	Exhibitors.	Residence.	Premiums.
Stallions.			
Best three years old and over, Brigham Young	R. Wall	Chico	$20 00
Best two years old and over, Dr. Henry	John Johnson	Chico	$10 00
Mares.			
Best three years old and over, Puss	Wm. Sharkey	Chico	$15 00

CLASS IV—DRAFT HORSES.

Animals.	Exhibitors.	Residence.	Premiums.
Stallions.			
Best three years old and over, Potomac	John Thompson	Quincy	$20 00
Best two years old and over, Rowdy	R. McEnespy	Chico	$15 00
Mares.			
Best three years old and over, Mary Ann	Wm. Sharkey	Chico	$15 00

CLASS V—ROADSTERS.

Animals.	Exhibitors.	Residence.	Premiums.
Stallions.			
Best three years old and over, Hambletonian	R. C. Goodspeed	Chico	$20 00
Mares.			
Best three years old and over, Emroy Bidwell	N. S. Rose	Chico	$20 00
Geldings.			
Best four years old and over, Dick Salsbury	M. E. Calden	Colusa	$20 00

CLASS VI—CARRIAGE HORSES.

Animals.	Exhibitors.	Residence.	Premiums.
Best span carriage horses, Jim and Jake	J. J. Waste	Chico	$20 00

CLASS VII—ROADSTER TEAM.

Animals.	Exhibitors.	Residence.	Premiums.
Best span roadsters, Kate and Nellie	Wm. Sharkey	Chico	$20 00

CLASS VIII—SADDLE HORSES.

Animal.	Exhibitor.	Residence.	Premium.
Best saddle horse, Obe James	P. Wall	Chico	$10 00

CLASS IX—COLTS.

Animals.	Exhibitors.	Residence.	Premiums.
Best yearling horse colt, Frank	John Thompson	Quincy	$15 00
Best sucking horse colt, Rob Roy	John Johnson	Chico	$10 00
Best sucking mare colt, Dolly	R. Horton	Chico	$5 00

CLASS X—SWEEPSTAKES.

Animals.	Exhibitors.	Residence.	Premiums.
Best stallion of any age, Frank Tallman	A. J. Starling	Nord	$40 00
Best mare of any age, Nellie	Wm. Sharkey	Chico	$30 00

CLASS I—THOROUGHBRED CATTLE.

Animals.	Exhibitors.	Residence.	Premiums.
Bulls.			
Best three years old and over, Monkey John	R. M. Sparks	Marysville	$30 00
Best two years old and over, Glenwood	Moses Wick	Oroville	$20 00
Best one year old and over, Sherman	Moses Wick	Oroville	$15 00
Best bull calf, Bismarck	R. M. Sparks	Marysville	$10 00
Cows.			
Best three years old and over, Ione Second	J. L. Chambers	Jacinto, Colusa Co.	$25 00
Best two years old and over, Annie	R. McEnespy	Chico	$15 00
Best one year old and over, Belle Butler	Moses Wick	Oroville	$10 00
Best heifer calf, Maggie Fourth	R. M. Sparks	Marysville	$5 00

CLASS II—GRADED CATTLE.

Animals.	Exhibitors.	Residence.	Premiums.
Bulls.			
Best bull calf, Butte (None other exhibited.)	J. C. Mandeville	Chico	$5 00
Cows.			
Best three years old and over, Mollie	Charles Ball	Chico	$15 00
Best two years old and over, Mollie	John Bidwell	Chico	$10 00
Best one year old and over, Bettie	John Bidwell	Chico	$5 00
Best heifer calf, Dolly Varden	Charles Ball	Chico	$2 50

CLASS III—SWEEPSTAKES.

Animals.	Exhibitors.	Residence.	Premiums.
Best bull of any age or stock, Monkey John	R. M. Sparks	Marysville	$40 00
Best cow of any age or stock, Ione Second	J. L. Chambers	Jacinto, Colusa Co.	$20 00

CLASS I—FINE WOOL SHEEP.

Animal.	Exhibitor.	Residence.	Premium.
Best ram two years old and over, Challenge	H. A. Rawson	Red Bluff	$20

CLASS II—LONG WOOL SHEEP.

Animals.	Exhibitors.	Residence.	Premiums.
Best five ram lambs	John Guill	Chico	$10
Best five ewe lambs	J. R. Bennett	Chico	$10

CLASS III—SWEEPSTAKES.

Animals.	Exhibitors.	Residence.	Premiums.
Best ram of any age or breed, Challenge	H. A. Rawson	Tehama	$15
Best ewe of any age or breed	J. H. Guill	Chico	$10
Best pen of five ewes	J. R. Bennett	Chico	$15

CASHMERE AND ANGORA GOATS.

Animals.	Exhibitors.	Residence.	Premiums.
Best thoroughbred buck, Sutton Second	N. Gilmore		$20
Best pen of kids	N. Gilmore		$10

SWINE.

Animals.	Exhibitors.	Residence.	Premiums.
Best boar two years old and over, Brigham	Wm. Sharkey	Chico	$15
Best boar under two years, Imported Toronto	R. M. Sparks	Marysville	$10
Best breeding sow, Bess of Butte	A. H. Guill	Chico	$10
Best pen of six pigs	R. M. Sparks	Marysville	$5

POULTRY.

Animals.	Exhibitors.	Residence.	Premiums.
Best lot Brahmas	A. H. Chapman	Chico	$5
Best lot Polands	R. Donovan	Chico	$5
Best lot games	R. Donovan	Chico	$5
Best lot turkeys	R. Donovan	Chico	$5
Best lot ducks	R. Donovan	Chico	$5
Best lot geese	R. Donovan	Chico	$5
Best lot Cochins	R. Donovan	Chico	$5
Best lot white Leghorn	R. Donovan	Chico	$5
Best lot Australian turkeys	R. Donovan	Chico	$5
Best lot Black Java	J. C. Mandeville	Chico	$5
Best lot dark Brahmas	J. R. Kennedy	Chico	$5

JACKS AND MULES—SPECIAL PREMIUMS.

Animals.	Exhibitors.	Residence.	Premiums.
Best mule two years old and over, Dolly Varden	F. C. Graves	Chico	$15
Best exhibit of four mules	F. C. Graves	Chico	$50

SECOND DEPARTMENT.

CLASS I—AGRICULTURAL MACHINES.

FIRST DIVISION.

Articles.	Exhibitors.	Residence.	Premiums.
Best cider press	Jones, Reilly & Co.	Chico	$5 00
Best straw cutter	Jones, Reilly & Co.	Chico	$5 00

CLASS II—AGRICULTURAL MACHINES.

SECOND DIVISION.

Articles.	Exhibitors.	Residence.	Premiums.
Best broadcast sowing machine	Jones, Reilly & Co.	Chico	$10 00
Best wheat drill and cultivator, Gorham seeder and cultivator	C. L. Stilson	Chico	$10 00

CLASS III—AGRICULTURAL MACHINES.

THIRD DIVISION.

Articles.	Exhibitors.	Residence.	Premiums.
Best farm feed mill	W. S. Bodich	Chico	$5 00
Best portable fence	R. B. Renick	Chico	$10 00

CLASS IV—TOOLS AND HOUSEHOLD IMPLEMENTS—NO EXHIBITION.

CLASS V—PLOWS.

Articles.	Exhibitors.	Residence.	Premiums.
Best subsoil and sulky plow	Myers & Gummow	Marysville	$10 00
Best two-gang sulky plow	Sherwood & Turner	Chico	$10 00
Deep tiller and two-gang plow	Hill & Knaugh	Marysville	Hon. men'n

CLASS VI—VEHICLES.

Articles.	Exhibitors.	Residence.	Premiums.
Best top buggy	Hull & Nye	Chico	$10 00
Best family carriage	Hull & Nye	Chico	$20 00
Best spring market wagon	Hull & Nye	Chico	$10 00
Best farm wagon	Sherwood & Turner	Chico	$10 00
Best wagon brake	Sherwood & Turner	Chico	$5 00
Fine buggy carriage	H. M. Bernard	Sacramento	Spe'l $20 00
Good farm wagon	Jones, Reilly & Co.	Chico	Hon. men'n

THIRD DEPARTMENT.

CLASS I—TEXTILE FABRICS, AND MATERIAL FROM WHICH THEY ARE MADE.

Articles.	Exhibitors.	Residence.	Premiums.
Best exhibition of rugs	Mrs. Thos. Pyle	Chico	$5 00
Best knit stockings	Miss Ida Beslauer	Chico	$2 50
Best foot mats	Miss Frankie Jones	Chico	$2 50
Best knit bedspread	Mrs. Anna Small	Chico	$5 00
Best display drygoods	M. Kraker	Sacramento	Hon. men'n

CLASS II—MANUFACTURE OF LEATHER.

Articles.	Exhibitors.	Residence.	Premiums.
Best display of saddles, bridles, and harness	J. F. Stoll	Sacramento	Hon. men'n

CLASS III—NEEDLE AND WAXWORK, CLOTHING, ETC.

Articles.	Exhibitors.	Residence.	Premiums.
Best patchwork quilt	Mrs. M. A. Helphenstine	Chico	$5 00
Best worked quilt	Mrs. E. Bidwell	Chico	$5 00
Best wreath artificial flowers	Miss P. Errington	Chico	$2 50
Hair wreath	Miss P. Errington	Chico	Hon. me'n.
Chemise	Miss Carrie Mason	Chico	Hon. me'n.
Toilet set	Mrs. C. C. Mason	Chico	$2 50
Sofa pillow	Mrs. W. Z. King	Chico	$2 50
Two catchalls, card receiver, satchel, spool-holder, handkerchief box	Miss Carrie Arents	Chico	Sp'l—$5 00
Crochet suit	Mrs. John Guill	Chico	$2 50
Sofa pillow cover	Miss E. Waterland	Chico	$2 50
Lady's night dress	Miss M. E. Gilley	Chico	$2 50
Embroidery	Mrs. C. J. Peterson	Chico	$2 50
Hair flower wreath	Miss Lizzie Kempf		$2 50
Crystal basket of flowers	Miss M. J. Bruce	Chico	$2 50
Patchwork quilt	Mrs. J. B. Swearingen	Chico	$2 50
Embroidered skirt	Mrs. J. B. Swearingen	Chico	$2 50
Silk patch quilt	Miss A. B. Short	Chico	$2 50
Best display of millinery	Mrs. J. M. Pearson	Chico	$10 00

Class III—Needlework, Etc.—Continued.

Articles.	Exhibitors.	Residence.	Premiums.
Lamp mat	Miss Estella Miller	Chico	$2 50
Crochet tidy	Mrs. H. M. Bruce	Chico	$2 50
Bead basket	Mrs. C. F. Elsworth	Chico	$2 50
Sample plain sewing	Miss Jessie Lee	Chico	$2 50
Two samples beadwork	Mrs. J. R. Kennedy	Chico	$2 50
Child's afghan	Mrs. J. R. Kennedy	Chico	$5 00
India poplin dress	Mrs. Sarah Dressler	Oroville	Hon. me'n.
Best floor rug	Mrs. Thos. Pyle	Chico	$2 50
Best sofa pillow	Miss L. Richardson	Chico	$2 50
Braided mat	Miss Frankie Jones	Chico	$2 50
Best beaded pincushion	Mrs. Geo. F. Jones	Chico	$2 50
Best display children's and ladies' clothing	M. Kraker	Sacramento	Hon. me'n.
Best worked quilt	Mrs. Kesseling	Chico	$2 50
Braided dress for child	Mrs. Dell Silsby	Chico	$2 50
Worsted flowers	Mrs. F. P. Henderson	Chico	Hon. me'n.

FOURTH DEPARTMENT.

CLASS I—MECHANICAL PRODUCTS.

Articles.	Exhibitors.	Residence.	Premiums.
Best display silver and Britannia ware	Hibbard & Kelly	Chico	$7 50
Western cottage organ	W. Z. King	Chico	Hon. me'n.

CLASS III—CABINET WORK.

Articles.	Exhibitors.	Residence.	Premiums.
Best display of furniture	Lucas & Walraven	Chico	$20 00

CLASS IV—WOODEN WARE.

Articles.	Exhibitors.	Residence.	Premiums.
Best exhibit broomcorn, brooms, and brushes	F. Phillips	Chico	$10 00

CLASS V—CHEMICALS.

Articles.	Exhibitors.	Residence.	Premiums.
Best display soap	Mrs. M. A. Helphenstine	Chico	$5 00

CLASS VII—MINERALS, FOSSILS, BIRDS, FISHES, ETC.

Articles.	Exhibitors.	Residence.	Premiums.
Best case insects	F. Hartman	Chico	$2 50
Best exhibition birds	A. Peri	Marysville	Dip. & $5 00
Specimen of coral	Miss Olive Turner	Chico	Hon. me'n.

FIFTH DEPARTMENT.

CLASS I—FLOUR AND GRAIN.

Articles.	Exhibitors.	Residence.	Premium.
Best sack flour	J. L. Keefer	Chico	$5 00
Best sample bearded wheat	Wm. Van Wert	Chico	$5 00
Best variety cereals	A. B. Collins	Chico	$10 00
Best ten pounds hops	J. C. Mandeville	Chico	$5 00
Best bushel Chile wheat	John Bidwell	Chico	$5 00
Best bushel surprise oats	John Bidwell	Chico	$2 50
Best bushel Chevalier barley	John Bidwell	Chico	$2 50
Best bushel white club wheat	J. R. Bennett	Chico	$5 00
Best display corn	J. R. Kennedy	Chico	$10 00

CLASS II—VEGETABLES AND ROOTS.

Articles.	Exhibitors.	Residence.	Premium.
Best display garden seeds	F. Phillips	Chico	$5 00
Best display pumpkins and squashes	J. R. Kennedy	Chico	$5 00
Best table vegetables	J. R. Kennedy	Chico	$15 00
Second best table vegetables	F. Phillips	Chico	$10 00
Basket pink-eye potatoes	J. T. Thrasher	Chico	Hon. me'n.

CLASS III—FLOWERS.

Articles.	Exhibitors.	Residence.	Premium.
Best and largest collection of flowering plants in bloom	J. R. Kennedy	Chico	$10 00

CLASS IV—CHEESE.

Articles.	Exhibitors.	Residence.	Premium.
Best and largest display of cheese	Mrs. W. Z. King	Chico	$10 00

CLASS V—BUTTER, BREAD, ETC.

Articles.	Exhibitors.	Residence.	Premium.
Sample biscuit	Miss Jessie Leo	Chico	Hon. me'n.
Best domestic bread	Mrs. J. Mandeville	Chico	$5 00
Domestic bread	Mrs. E. F. Small	Chico	Spec'l $2 50

CLASS VI—HONEY, PRESERVES, PICKLES, ETC.

Articles.	Exhibitors.	Residence.	Premium.
Best ten pounds honey	Clark & Harbison..		Hon. me'n.
Largest and best variety canned fruit	J. R. Kennedy	Chico	$10 00
Largest and best varieties jellies	Miss Mary E. Gelly	Chico	$5 00
Best variety preserves in glass	Mrs. J. Helphentine	Chico	$5 00
Best ten pounds honey produced in district	Chas. Hickok	Chico	$5 00
Best variety pickles	Mrs. E. Bidwell	Chico	$5 00
Box of honey	V. H. White	Chico	Hon. me'n.
Box of honey	Daniel Bidwell	Chico	Hon. me'n.
Box of honey	R. Donovan	Chico	Hon. me'n.
Display forty varieties of jellies in glass	Mrs. J. P. Odbert..		Hon. me'n.

SIXTH DEPARTMENT.

CLASS I—FRUIT.

Articles.	Exhibitors.	Residence.	Premium.
Best display apples	F. Phillips	Chico	$10 00
Best display quinces	F. Phillips	Chico	Hon. me'n.
Best display pears	J. R. Kennedy	Chico	$10 00
Best display green figs	J. R. Kennedy	Chico	$5 00
Best display tropical fruits	J. R. Kennedy	Chico	$10 00
Best display peaches	J. R. Bennett	Chico	$10 00
Best display plums	Daniel Bidwell	Chico	$10 00
Best general display fruits	Rob't Williamson..	Chico	Hon. me'n.

CLASS II—DRIED AND PRESERVED FRUITS, NUTS, ETC.

Articles.	Exhibitors.	Residence.	Premium.
Best display dried fruits	F. Phillips	Chico	$20 00
Best display cultivated nuts	J. R. Kennedy	Chico	$5 00
Display dried fruits	Geo. E. Williams	Chico	Hon. me'n.
Display dried fruits	J. R. Kennedy	Chico	Hon. me'n.
Display dried apples	Wm. Boness	Chico	Hon. me'n.

SEVENTH DEPARTMENT.

CLASS I—PAINTINGS, DRAWINGS, ETC.

Articles.	Exhibitors.	Residence.	Premiums.
Best oil painting	F. Halzman	Chico	$10 00
Best water-color painting	Mrs. E. D. Kimball	Chico	$10 00
Best exhibition photographs	H. Arents	Chico	$10 00
Best penmanship	R. H. Allen	Chico	$5 00
Steel engraving	R. H. Allen	Chico	Hon. men.
Chromo, photograph, etc	R. H. Allen	Chico	Hon. men.
Water-color painting	Miss Carrie Arents.	Chico	$2 50
Pencil sketch	Mrs. R. H. Allen	Chico	$2 50
Crayon sketch, Autumn leaves	Miss A. McEnespy	Chico	$2 50
Ornamental picture	Mrs. J. T. Thrasher.	Chico	$2 50
Medley picture	Mrs. W. S. Elliott	Chico	$2 50
Penmanship	J. E. Peterson	Chico	$2 50
Penmanship	F. Halzman	Chico	$2 50
Oil painting	Mrs. T. B. Henderson	Chico	$2 50
Oil painting	Mrs. J. R. Kennedy	Chico	Hon. men.
Oil painting	Mrs. A. F. Blood	Chico	Hon. men.
Oil painting	H. Hallet	Chico	Hon. men.

CLASS II.

Articles.	Exhibitors.	Residence.	Premiums.
Best exhibition sculpture	Mrs. G. B. Cady	Chico	$10 00
Best exhibition marble work	J. H. Lee	Chico	$10 00

EIGHTH DEPARTMENT.

WINES, LIQUORS, GRAPES, ETC.

Articles.	Exhibitors.	Residence.	Premiums.
Samples grape syrup	F. Phillips	Chico	$5 00
White wine of 1870	F. Phillips	Chico	$5 00
White wine of 1871	F. Phillips	Chico	$5 00
Best display of wine grapes	M. B. Sisson	Chico	$20 00
Best sherry wine	M. B. Sisson	Chico	$5 00
Red wine of 1870	Mrs. Mary Sellick	Chico	$5 00
Seven varieties table grapes	Mrs. Mary Sellick	Chico	Sp'l $10 00
Best display table grapes	J. R. Kennedy	Chico	$20 00
Best five pounds raisins	J. R. Kennedy	Chico	$10 00
Display of grapes	J. R. Nickeson	Lincoln	Hon. men.
Display Malaga raisins	N. M. Kelly	Chico	$5 00

MISCELLANEOUS.

Articles.	Exhibitors.	Residence.	Premiums.
Leather-work picture frame	Miss Alice Peck	Chico	$2 50
Leather-work picture frame	Miss Nora Peck	Chico	Hon. men.
Air castle	Mrs. C. C. Mason	Chico	Hon, men.
Knit tidy and bead bag	Mrs. J. Wiggley	Chico	Hon. men.
Two thread picture frames	Mrs. John Guill	Chico	Hon. men.
Berlin wool picture and bouquet	Miss Eliza Papst	Butte City	Hon. men.
Chromo lithograph, Parlor Amusements	G. Thistleton	Chico	Silver med.
Glass cutter and letter clip	D. L. McGee	San Francisco	Silver med.
Sample cotton in seed	W. Bassett	Chico	Silver med.
Two leather frames	Miss F. Anderson	Chico	Sp'l $2 50
Patent beehive	Clark & Harbison		Hon. men.
One bluestoning machine	Daniel Best	Marysville	Sp'l $5 00
Two cases minerals, fossils, and shells	B. F. Allen	Chico	Sp'l $20 00
Gold pens	G. O. Shepherd	San Francisco	Hon. men.
Postage stamp album	J. E. Peterson	Chico	Hon. men.
Carondelet table	J. G. H. Meyer	San Francisco	Silver med.
Hats, caps, robes, etc	D. H. Quinn	Sacramento	Hon. men.
Carved wood picture frame	H. Hallet	Chico	Hon. men.
Best sample vinegar	F. Phillips	Chico	Hon. men.
Exhibit California blankets	D. E. Knight	Marysville	$20 00

GEORGE J. BOURNE, Secretary.

FINANCIAL REPORT.

Date.	On what account.	Amount.
	Receipts.	
May 27	From H. D. Titcomb	$12 00
"	McDougal, lecture	5 00
June 1	Morrel troupe	8 00
July 13	Japanese troupe	20 00
July 22	Minstrel troupe	8 00
July 27	Wilton troupe	20 00
Oct. 5	Two hundred and fifty-eight annual memberships	1,290 00
	Four life memberships	100 00
	Entrance money, races	1,025 00
	Admission to Fair Grounds first day	41 50
	Admission to Fair Grounds second day	104 00
	Admission to Fair Grounds third day	189 50
	Admission to Fair Grounds fourth day	202 50
	Admission to Fair Grounds fifth day	164 00
	Admission to Pavilion first day	3 00
	Admission to Pavilion second day	26 00
	Admission to Pavilion third day	44 00
	Admission to Pavilion fourth day	78 00
	Admission to Pavilion fifth day	49 50
	Sale of Quarter Stretch Badges	11 50
	Receipts of ball	178 00
	Pool privileges	250 00
	Bar privileges	337 50
	Pavilion privileges, ice cream, fruits, etc	27 50
	Fair Ground privileges, fruits, etc	61 75
	Sale of fruit at Pavilion	9 50
	State appropriation	2,000 00
	E. C. Nichols, subscription	10 00
	E. Rose, subscription	10 00
	Shean & Evans, subscription	20 00
	Mr. Schivein, subscription	5 00
	A. W. Kleis, subscription	5 00
	Halzman & Co., subscription	2 50
	F. Lightner, subscription	5 00
	Isaac Burk, subscription	50 00
	J. R. Bennett, subscription	50 00
	G. W. Dorn, subscription	50 00
	C. A. Miller, subscription	10 00
	George J. Bourne, subscription	20 00
	Money returned on purses	160 87

Date.	On what account.	Amount.
	A. H. Chapman, subscription	$20 00
	William Thorp, subscription	20 00
	J. W. B. Montgomery, subscription	20 00
	R. McEnespy, subscription	20 00
	John Bidwell, subscription	100 00
	William Sharkey, subscription	20 00
	George F. Jones, subscription	300 00
	John Johnson, premium	20 00
	R. McEnespy, premium	15 00
	John Bidwell, premium	25 00
	J. R. Bennett, premium	30 00
	A. H. Chapman, premium	5 00
	F. C. Graves, premium	50 00
	M. J. Bowdich, premium	5 00
	Myers & Gummow, premium	10 00
	Sherwood & Turner, premium	25 00
	Israel Hull, premium	20 00
	Mrs. Helpenstine, premium	15 00
	Mrs. E. F. Small, premium	2 50
	Daniel Bidwell, premium	10 00
	Mrs. George B. Casby, premium	10 00
	Mrs. Mary Sellick, premium	15 00
	Daniel Best, premium	5 00
	D. E. Knight, premium	20 00
	Unpaid premiums: J. J. Waste	20 00
	Hubbard & Kelly	7 50
	Mrs. W. S. Elliott	2 50
	A. Peri	5 00
	Mr. Kelly	5 00
	Total	$7,486 62
	Disbursements.	
June 1	One can coal oil	$3 50
	Ten lamp chimneys	2 50
	Paid man for lighting hall	1 50
June 29	Cutting weeds from yard	5 00
July 12	Hauling weeds from yard	1 50
July 13	Lighting hall, two nights	4 00
	Six shades for lamps	2 25
	One can coal oil	3 50
	Six chimneys	1 50
	One record book	2 00
	Stationery	1 00
	Six memorandum books	1 12
July 22	Lighting and cleaning hall	2 00
July 27	Watering trees	2 00
July 29	Paid for lighting hall, two nights	4 00
	Seven gallons oil	5 50

Date.	On what account.	Amount.
Aug. 2	Watering trees	$2 00
Aug. 7	Watering trees	2 00
Aug. 14	Watering trees	2 00
Aug. 22	Five gallons oil	3 00
Aug. 22	Two nights' lighting	4 00
Aug. 26	Stamps	4 50
	Wrapping paper	50
	Sticking bills	1 00
Sept. 7	Freight on box	1 00
Sept. 19	Distributing bills	2 00
Sept. 27	Telegram for flags	2 50
Sept. 28	Cleaning well	5 00
	Paid for ribbon	1 25
	Stationery	2 00
Oct. 10	Paid for cleaning band wagon, etc	10 50
	Return entrance to Byers	40 00
	Ball expenses: Janitors	8 00
	Music	45 00
	Doorkeepers	10 00
	Waiter boy	2 00
	Printing	7 50
	Sticking bills	50
	Distributing programmes	5 00
	Purses, first day's races	650 00
	second day's races	400 00
	third day's races	300 00
	fourth day's races	700 00
	fifth day's races	900 00
	J. Seibert, music	290 00
	John McFreeley, broken drum	15 00
	R. McEnespy, hay	238 00
	Henry Graham, labor	9 00
	H. McBride, sprinkling	180 00
	J. W. Whitten, pumping	49 00
	J. M. Eckfeldt, wine	50 00
	Sherwood & Turner, blacksmithing	24 00
	Chambers & Behme, dray	15 50
	Hibbard & Kelly, gas fixtures	39 50
	W. L. Bradly, entry clerk, Pavilion	28 00
	A. Thomas, at gate	20 00
	C. L. Stilson & Co., hardware	10 75
	F. M. Fowler, sprinkling	25 00
	O. Molin, labor	7 50
	Ben. Malbone, labor, Pavilion	24 00
	C. D. May, sprinkling street	35 00
	Mrs. Pearson, rosettes	13 50
	William Twitchell, watching Pavilion	32 00
	Levi Smith, work on track	24 00
	H. O. Patton, receiver at gate	20 00

Date.	On what account.		Amount.
	H. P. Holmes, receiver at gate		$20 00
	Gas bill, Hibbard & Kelly		30 00
	Young Peck, at Pavilion		5 00
	John Tatham, doorkeeper at Pavilion		18 00
	E. Ross, cleaning well		8 50
	James Barhum, express wagon		4 75
	E. Roundtree, hauling straw		22 00
	William Barnes, horse hire		50 00
	William Tibbets, making sashes		7 25
	J. W. Scate, Superintendent Pavilion		35 00
	William Thorp, Superintendent Stock Grounds		600 00
	T. L. Fisher, carpenter, Pavilion		8 00
	Amount premium list		1,682 50
	Total		$6,794 87
	Receipts		$7,486 62
	Disbursements		6,794 87
	Cash on hand		$691 75
	Premiums unpaid.		
	J. J. Waste	$20 00	
	Hibbard & Kelly	7 50	
	Mrs. W. S. Elliott	2 50	
	A. Peri	5 00	
	Mr. Kelly	5 00	
			40 00
	Warrants unpaid.		
	Allen & Taylor	$16 95	
	Harker & Dorn	4 12	
	M. Marcuse & Co	16 62	
	Sanderson, Harris & Co	104 85	
	Weed & Weed	12 00	
	Appeal Association	15 00	
	Northern Enterprise	185 00	
	George W. Dorn	3 00	
	Jones, Reilly & Co	226 71	
	Cook & Fowler	91 79	
			676 04
	T. Reinhart		8 00
	Lucas & Walraven		2 00
	Which leaves the society indebted		$34 29

Since making the above report the following donations have been made:

By whom donated.	Amount.	Total.
J. J. Waste	$20 00	
Hibbard & Kelly	7 50	
A. Peri	5 00	
Mrs. Elliott	2 50	
Mr. Kelly	5 00	
		$40 00
Indebtedness		34 29
Leaving balance on hand		$5 71

The premiums offered by the society amounted to two thousand four hundred and ninety-three dollars and fifty cents; say, in round numbers, two thousand five hundred dollars. The State appropriation was two thousand dollars; but the Controller's warrant was not worth its face several months before redemption, which will probably be sometime in February, eighteen hundred and seventy-three, and the society did not relish the idea of suffering a heavy discount, both for its own sake, as well as for the credit of the State. To avoid loss, therefore, it was necessary to find a man able and willing, under the circumstances, to take the warrant at its par value. That man was John Parrott, Esq., of San Francisco. The premiums awarded and paid amounted to one thousand six hundred and eighty-two dollars and fifty cents, which, taken from the two thousand dollars, leaves a balance of three hundred and seventeen dollars and fifty cents in the Premium Fund for the year eighteen hundred and seventy-three.

But imperfect as this report is to be, it would be less complete without some allusion to the races, the comparative expenses of which may be illustrated by inserting our speed programme, as follows:

SPEED PROGRAMME.

FIRST DAY—TUESDAY, OCTOBER 1ST.

Running Race—Best three in five; free for all. Purse, five hundred dollars; first horse, three hundred dollars; second horse, one hundred and twenty-five dollars; third horse, seventy-five dollars.

Half Mile Race—Best two in three; free for all. Purse, one hundred and fifty dollars.

SECOND DAY—WEDNESDAY, OCTOBER 2D.

Trotting Race—Best three in five; free for all horses that have never beaten three minutes. Purse, three hundred dollars; first horse, one hundred and seventy-five dollars; second horse, seventy-five dollars; third horse, fifty dollars.

Running Race—Best two in three; free for all horses owned in the district. Purse, one hundred dollars.

THIRD DAY—THURSDAY, OCTOBER 3D.

Running Race—Mile and repeat; free for all three-year-olds. Purse, four hundred dollars; first horse, two hundred and fifty dollars; second horse, one hundred dollars; third horse, fifty dollars.

Double Team Trot—Best three in five; free for all double teams owned in the district. Purse, one hundred dollars.

FOURTH DAY—FRIDAY, OCTOBER 4TH.

Pacing Race—Best three in five; free for all pacers. Purse, three hundred dollars; first horse, one hundred and seventy-five dollars; second horse, seventy-five dollars; third horse, fifty dollars.

Trotting Race—Best three in five; free for all untried horses owned in the district. Purse, four hundred dollars; first horse, two hundred and fifty dollars; second horse, one hundred dollars; third horse, fifty dollars.

FIFTH DAY—SATURDAY, OCTOBER 5TH.

Running Race—Two mile heats; best two in three; free for all. Purse, five hundred dollars; first horse, three hundred dollars; second horse, one hundred and twenty-five dollars; third horse, seventy-five dollars.

Trotting Race—Best three in five; free for all. Purse, four hundred dollars; first horse, two hundred and fifty dollars; second horse, one hundred dollars; third horse, fifty dollars.

Total premiums offered for races, three thousand one hundred and fifty dollars.

Under the more comely garb of "speed programme," our horse races are, it is respectfully suggested, costing too much. The question is forced upon us: Cannot the "speed programme" be dispensed with, to the great relief and benefit of agricultural Fairs? If answered in the negative, Can it not be greatly restricted without injury to agricultural exhibitions? Sometimes the amount offered for races is not all paid. We actually paid but two thousand nine hundred and fifty dollars. But it is not often the case that *less* is paid, on the contray *more*, in the form of special premiums. The amount offered for purses year after year seems to increase, as far as the experience of our society goes, to wit:

Purses.	Amount.
Purses offered for races in 1867	$935 00
Purses offered for races in 1868	1,125 00
Purses offered for races in 1869	1,400 00
Purses offered for races in 1870	2,550 00
Purses offered for races in 1871	3,000 00
Purses offered for races in 1872	3,150 00

It is too apparent that this speed programme business has grown into awful proportions. We offer less than two thousand five hundred dollars to encourage agriculture, and all other laudable industries indispensable to the public welfare, and pay less than one thousand seven hundred dollars! How often do exhibitors have to donate their premiums because the speed programme has absorbed all available receipts! After so formidable a display to encourage "trials of speed," our society has no right to cast reflections; nor has its President, who hurriedly throws together these statements, any authority to commit any members of the society or of the Board on this subject. Nevertheless, it may be that public opinion does not demand of agricultural societies so large a sacrifice of money, and time, and consequences. It is barely possible that we may, as Boards of Directors, have attempted to lead public opinion, and gone farther than public sentiment warranted. In view of the tendency of this feature in our agricultural Fairs, the President of this society takes the responsibility of quoting the following from the *California Farmer* of some time in eighteen hundred and seventy-two, as not inappropriate:

"RACING AT AGRICULTURAL FAIRS.—A very interesting letter from Alexander Hyde, Esq., of Berkshire County, Massachusetts, appears in the *Country Gentleman*, of September twenty-sixth, upon the subject of agricultural Fairs, their tendencies and influences, from which we select the following sentences, and most heartily adopt them, because they are the views and sentiments we have so often urged in our columns, and rejoice to know the evil alluded to will soon pass away:

"'We are told by the advocates of agricultural horse-trots that we must have a little fun to draw the crowd and pay expenses. We do not object to recreation. We fully believe in it. We need it, and should have it every day of our lives. We do not deny that it belongs legitimately to the Fair; but it should be of the right kind, and subordinate to the main object. We submit that horse-racing is not of the right kind, as it draws a crowd of loafers, and is almost invariably accompanied by betting, pool-selling, and the various forms of gaining and losing money without an equivalent. In plain words, it encourages gambling, and is in every way demoralizing.

"'It is not true that Fairs cannot pay expenses without the attraction of a horse-trot. There is not a more successful agricultural organization in the United States than the New York State Agricultural Society; nor is there a Fair which draws a greater crowd, pays larger premiums, makes a better exhibition, and every way better accomplishes its ends, than that of this society—and still it has no race course. This is true also of many other most successful societies. The exhilaration of seeing good, improved implements, fruits, flowers, and vegetables, superior to those that grew in Eden; and, above all, the delight of seeing a multitude of intelligent, happy, and well-behaved men and women, and making the acquaintance of the most skillful agriculturists and mechanics, are sufficient recreation for all sensible folks. If the loafers and jockeys want something more exciting, let them go to the race course proper, and not undertake to incorporate this illegitimate bantling into a pure farmers' and mechanics' assembly.'"

If we take into consideration the fact that racing is a cruel sport, and that to obtain the utmost speed the noble horse is spurred and whipped beyond his strength, and that, besides the premiums offered and paid for racing, the cost of the track and fixtures, and the keeping of them in repair, amounts annually, at such a district Fair as ours, to several hundred dollars, are we not justified in asking ourselves to pause and count the cost and consequences of this feature of our agricultural exhibitions?

The by-laws were changed in May last so as to elect the officers of this society each year, on Wednesday evening of Fair week. In accordance therewith the following were elected:

PRESIDENT.

JOHN BIDWELL	Chico.

VICE PRESIDENTS.

T. F. MILLER	Chico, Butte County.
R. McENESPY	Chico, Butte County.

TREASURER.

A. H. CHAPMAN	Chico, Butte County.

SECRETARY.

GEORGE J. BOURNE	Chico, Butte County.

BOARD OF DIRECTORS.

J. L. Keefer	Rock Creek, Butte County.
T. F. Miller	Chico, Butte County.
Isaac R. Bennett	Chico, Butte County.
G. W. Dorn	Chico, Butte County.
J. M. Hoyl	Chico, Butte County.
J. Swearingen	Chico, Butte County.
C. A. Miller	Chico, Butte County.

J. M. Garner	Chico, Butte County.
J. J. Waste	Chico, Butte County.
A. G. Toomes	Tehama, Tehama County.
J. C. Tyler	Tehama, Tehama County.
J. D. Byers	Susanville, Lassen County.
C. C. Goodrich	Copper Vale, Lassen County.
Grant I. Taggart	Shasta, Shasta County.
F. C. Graves	Olimpo, Colusa County.
John Boggs	Princeton, Colusa County.
W. Bassett	Chico, Butte County.
O. L. Clark	Chico, Butte County.
R. M. Cochran	Chico, Butte County.
Moses Wick	Oroville, Butte County.
J. W. B. Montgomery	Cana, Butte County.

These hold office for one year, from and after the first Saturday in May, eighteen hundred and seventy-three.

The plan of electing officers during Fair week is not good. Members of the society will not generally give the matter attention, and furthermore, it cannot be told whether or not the officers then acting are going to prove themselves worthy of reëlection till the results of their management shall be seen, long after the close of the Fair.

In regard to the display, both at the stock grounds and the Pavilion, it was, as a whole, creditable, not only equaling the expectations of all, but far surpassing the anticipations of the most sanguine. Certain it is, that no other Fair held in this district has commanded such wide and general interest.

The usual formalities attended the opening and management of the exhibition. Hon. Creed Haymond delivered the annual address, which was replete with deep thought and practical suggestions. Hon. Edward Tompkins, of Alameda County, also delivered an address, clear, forcible, and exceedingly appropriate. But unfortunately, none of the addresses were written, and no stenographers present to report them.

While no one industry could, perhaps, be said to be entirely new, yet, in a general sense, they are all new, indicating, too plainly to be misunderstood, the growth and prosperity of the district. The frosts of April had killed, in most places, the first grape blossoms and injuriously affected other fruit (a rare occurrence), so that, with the lateness of the season (October) we labored under unusual disadvantages. Notwithstanding, the display of fruit, both fresh and dried, was grand. Even raisins appeared, and of such quality as to render it almost certain that their production is to be, at no distant day, an extensive industry.

That every desirable variety of grapes and figs, olives, oranges, lemons, and other semi-tropical productions can be produced, are no longer questions of debate. They not only grow, but, if time and space permitted, instances could be cited to show that even the orange and lemon, in favored localities, actually thrive. Some farmers have turned their attention to almond orchards and raisin grapes, expecting to make the almond and raisin business quite extensive at no distant day. As to the fruits of temperate climates, they abound wherever cultivated.

Among cereals, wheat is the staple crop, not that it thrives better than barley, oats, or rye, but because there is an export demand. Exemption from high rates for transportation, inland as well as upon the ocean, and other oppressions, the result of combinations to take away the rightful profits of the farmer, the valleys of this district would soon be almost literally transformed into a vast grain field. As it is, a reliable estimate places the production of wheat, the present season, at not less than fifty thousand tons, or, say, one million six hundred thousand bushels.

Lumber produced in Butte and Tehama Counties and sent to San Francisco, will foot up for the year six million feet.

Domestic animals are raised in large numbers. They are remarkably healthy, and disease is almost unknown among them. Except in the mountainous portions of this district, cattle, horses, and sheep, are seldom fed or sheltered, but live in pastures or on the plains the whole year. The breeding of fine stock is receiving attention by many enterprising farmers, and with entire success. It will not be possible to enter into detail as to owners' names or the number and character of their blooded and improved horses and cattle, for want of time and space.

In regard to sheep, H. A. Rawson, of Tehama County, one of the largest raisers, estimates the number in that county at one hundred thousand. It would be safe to place the number of sheep and goats in the district at five hundred thousand. Mr. R. writes, in reference to the kind best suited to the locality, as follows: "The best breeds of sheep, we think, are three fourths merino and one fourth long wool or merino and Cotswold crossed. This infuses a new strain of blood in the fine sheep, increasing the weight, lengthening the staple, and adding much to the constitution," etc.

The native grasses in the valley have, from close pasturing, greatly diminished, and, in many places, entirely disappeared; *alfileria* and weeds replacing them. Sheep and other stock are largely driven to the mountains for Summer range. But even there the grasses must go to seed, or they will doubtless, in time, become extinct. Mr. Rawson writes: "The mountain pastures, as far as my experience goes, are being eaten out, and we have thought to supply the original amount of feed by sowing alfalfa and timothy seed, both of which we have found to do well as far as we have tried them." The hopes of farmers in the valleys seem to center on alfalfa (the Spanish name for lucern) for future pasturage. It is believed, from the success had thus far, that alfalfa, properly cultivated, can be made not only to replace the native grasses, but greatly increase the amount of pasturage; so the animals to be raised will far exceed in number and quality the palmiest days of early times, when the hills and slopes and plains abounded in bunch grass or native sod grass or wild oats; in fact, immense tracts seemed one vast waving oat field.

The new kind of wheat which attracted so much attention at our Fair was raised by Mr. Wm. Van Wert, about five miles from Chico, and on "adobe" land. Concerning it, he writes: "In eighteen hundred and sixty-nine, while heading barley for Mr. Turner, my attention was drawn to some large heads of wheat, a few of which I gathered and shelled to the amount of perhaps half a gill. This was sown about the tenth of February, eighteen hundred and seventy, and yielded thirteen pounds. This again was sown January twentieth, eighteen hundred and seventy-one, and five sacks, of one hundred and thirty pounds each, were harvested. From the five sacks, sown November twenty-second, eighteen hundred and seventy-one, one hundred and five sacks were harvested, although water stood for a long time on most of the ground, drowning out very much. It is a bearded variety, with velvety chaff, very white when ripe, of medium height, standing well without shelling out, ripening about one week earlier than club."

With the prospect of relieving the society from the embarrassment of debt, the balance in the Premium Fund to be added to the State appropriation, and the general interest everywhere manifest and increasing, bright hopes, in an agricultural point of view, are entertained for the future.

TRANSACTIONS

OF THE

SISKIYOU COUNTY AGRICULTURAL SOCIETY,

FOR

THE YEAR 1872.

REPORT.

YREKA, December 9th, 1872.

SIR: I herewith append the transactions of the Siskiyou Agricultural Society for the year eighteen hundred and seventy-two. I have clipped from the printed report, thinking it would be plainer and more concise than if written. As you will perceive, all the premiums published did not fill. The society, heretofore, being unable to pay up their published programme, the people had not confidence; but as they were all paid this year, it will give exhibitors a momentum for next. The farmers here are something like the farmers with you—they only exhibit for the premium—with a few exceptions.

Stock men are beginning to improve in a general way, although there have been several importations of fine blooded stock lately into the county, among the most noteworthy of which are seven head of Ayrshire stock, from New York, by Quinn & McConnell; Clydesdale, from Canada, by James Vance; Shorthorn bull, by Edson & Bro.; Devon bull, by J. A. Davidson, Scott Valley; Shorthorn bull and cow, by David Duter. The sheep men, of whom there are a large number, are beginning to wake up to their business, and will by next year be able to make a good showing.

Yours respectfully,

JAMES QUINN,
Secretary pro tem.

FINANCIAL REPORT.

Date.	On what account.	Amount.
	Receipts from all sources.	
	State aid	$2,000 00
	Badges	556 00
	Entries of stock	132 00
	Licenses	50 00
	Receipts at gate	153 75
	Receipts at bar	486 75
	Receipts at ball	256 10
	Receipts at pavilion door	21 00
	Entries to races	575 00
	Receipts from pools	29 50
	Sale of saddles	60 50
	From sale of remnants, etc	26 30
	Total	$4,346 40
	Expenditures.	
March 12th..	J. Strauser, labor	$40 00
March 13th..	McConnell & McManus	60 75
"	Raynes & Pyle	52 50
April 10th...	J. Strauser	20 50
April 13th...	Chinamen, labor	20 50
April 20th...	J. Vance, for Strauser and Chinamen	75 50
May 22d......	A. Pool	7 50
August 2d...	Chinamen	42 50
	J. Vance, for sundries	34 25
Oct. 9th......	J. Hendricks, labor	3 00
Oct. 9th	Purses this day	270 00
Oct. 10th.....	Purses this day	405 00
Oct. 11th.....	Purses this day	585 00
Oct. 12th.....	Purses this day	60 00
Oct. 15th.....	F. J. King, merchandise	5 50
	William Dunn, labor	6 00
	C. Cornish, Marshal	5 50
	B. Guilbert, soda	29 00
	A. D. Richards, labor	5 00
	O. Norman, merchandise	3 00
	Monet & Miller, ball supper	24 30
	T. Young, labor and merchandise	44 75
	H. Truitt, labor	20 00

Date.	On what account.	Amount.
	A. Winckler, merchandise	$12 00
	C. Roth, draying	1 50
	C. Iunker, lager	3 00
	H. Truitt, music at ball	55 00
	M. Renner, merchandise	18 75
	A. Winckler, merchandise	8 25
	Gas bill	8 00
	C. Peters, lager	9 00
	L. Huseman, merchandise	5 25
	John Pashburg, cigars	25 50
	S. Pellet, labor	22 37
	C. Britton, merchandise	8 62
	Wheeler & Baker, merchandise	41 16
	Martin & Co., hay	26 25
	H. Scheld, lager	9 00
	R. Nixon, printing	53 50
	Joseph Kessler, merchandise	18 75
	Raynes & Pyle, merchandise	12 11
	James Irwin, labor	8 00
	J. Vance, advanced labor	12 00
	Yreka Union, printing	21 00
	F. Ringe, saddles	52 00
	H. Hyer, labor	5 00
	L. Swan, merchandise	4 50
	F. Ranous, glass	6 50
	H. Skinner, labor	1 00
	R. O. Dewitt, merchandise	1 50
	Robert Redding, premium	70 00
	P. Kiernan, premium	20 00
	C. Hammond, premium	15 00
	J. C. Tolman, premium	10 00
	J. Quinn, premium	5 00
	Jake Kepler, premium	30 00
	F. Adkins, premium	15 00
	J. W. Evans, premium	30 00
	John Neilon, premium	10 00
	S. S. Williams, premium	15 00
	H. Hyer, premium	25 00
	J. N. T. Miller, premium	20 00
	H. Davis, premium	10 00
	I. S. Mathews, premium	7 50
	J. A. Davidson, premium	35 00
	Quinn & McConnell, premium	100 00
	G. K. Godfrey, premium	10 00
	C. McNulty, premium	5 00
	H. Richardson, premium	15 00
	Wake Miller, premium	15 00
	B. Guilbert, for pavilion	15 00
	G. K. Godfrey, entry returns	3 00
	J. Quinn, entry returns	3 00

Date.	On what account.	Amount.
	E. Autenrieth, labor	$10 00
	Mrs. Hilt, premiums	32 50
	Mrs. Dewitt, premium	2 00
	Mrs. Huseman, premium	5 00
	Mrs. Nixon, premium	2 00
	Mrs. Churchill, premium	2 00
	Mrs. Fultz, premium	4 00
	H. Wells, premium	10 00
	Willis Moore, premium	2 50
	Mrs. Moore, premium	5 00
	Henry Hazlett, premium	12 50
	D. B. Warren, premium	8 00
	Mrs. H. L. Davis, premium	5 00
	E. Steele, premium	5 00
	Charles Schlicht, premium	5 00
	H. L. Davis, premium	10 00
	J. Davidson, premium	2 50
	Sam Jackson, premium	2 50
	L. Fertig, premium	2 50
	J. Vance, premium	8 00
	F. M. Ranous, premium	5 00
	J. Quinn, premium	3 00
	P. J. Strickland, premium	5 00
	Mrs. Autenreith, premium	2 00
	Mrs. D. Merrick, premium	5 00
	Mrs. Chase, premium	5 00
	Mrs. Iffland, premium	13 00
	Miss Jennie Delong, premium	2 00
	Mrs. Buckmaster, premium	2 00
	Mrs. Nordheim, premium	2 00
	Mrs. Bisbee, premium	2 00
	Mrs. Field, premium	7 00
	Sisters of Mercy, premium	5 00
	Mrs. Ehret, premium	5 00
	S. B. Buckmaster, premium	5 00
	B. F. Smith, premium	10 00
	Miss Lotta Hanford, premium	2 00
	Miss Kate Peters, premium	7 00
	Miss Mary Wadsworth, premium	2 00
	Miss Aggie Vance, premium	2 00
	Miss Dora Peters, premium	2 00
	Miss Lizzie Nixon, premium	2 00
	Miss Kate Iunker, premium	2 00
	Miss Schlicht, premium	2 00
	McConnell & McManus, merchandise	176 37
	W. B. Cantrell	5 00
	E. H. Schofield	3 25
	H. L. & J. F. Davis, note	399 50
	Expressage on two packages	21 40

Date.	On what account.	Amount.
	E. & H. Wadsworth, interest	$29 14
	Discount on State warrant	100 00
	Total	$3,720 72
	Balance on hand	625 68
		$4,346 40

WILLIAM McCONNELL,
ROBERT NIXON,
WILLIAM IRWIN,
JAMES QUINN,
} Committee.

JAMES QUINN, Secretary pro tem.

STOCK EXHIBITED.

HORSES.

Thoroughbred.

Robert Redding—Gladiator, stallion, fourteen years old.

Graded Horses.

James Quinn—Sally, two years old, by Gladiator.
Jake Kepler—Mountain Maid, two years old, by Gladiator.
James Pat. Kiernan—Victor, stallion, seven years old, by Gladiator.
James Quinn—Yreka Maid, one year old, by Gladiator; dam, Julia, by Vermont.
Jake Kepler—Jenny Lind, one year old, by Lodi.
Robert Redding—Lark, sucking colt, Gladiator filly.
Jake Kepler—Gobbler, sucking colt, by Lodi.
J. C. Tolman—Maunita, three years old; dam, Minnie Rifle.
C. F. Hammond—Alamode, seven years old, by Rifleman.
C. F. Hammond—Bill, sucking colt; dam, Alamode.

Horses of all work.

J. W. Evans—Polly, mare, nine years old, no colt.
C. B. Marster—Black Hornet, stallion, five years old.
Jake Kepler—Murphy filly, thirteen years old.
J. D. Gray—Martha Howard, eight years old.
Frank Adkin—Sire, stallion, by Sir Richard.

Draft Horses.

John Neilon—Lion Heart, Turk, three years old, by Lion Heart.
S. S. Williams—Nelly, mare and colt, five years old.

Roadsters.

James Quinn—Julia, seven years old, by Vermont; dam, Julia, mother of Minnie Rifle.
Robert Redding—Red Maria, seven years old.
J. C. Tolman—Dolly, seven years old, by Vermont.
G. K. Godfrey—Godwin, stallion, two years old.
J. N. T. Miller—Brick Pomeroy, six years old, by Vermont.
Henry Hyer—Ashland, stallion, four years old, by Sligart.

Roadster Teams.

Henry L. Davis—Orphe and Eliza Davis.
John B. Rohrer—Doogan, six years old, and Jeffrey, eight years old.

Colts.

J. W. Evans—Dick, one year old, pedigree unknown.
James Quinn—David Horn, sucking colt, by Frank Tolman.
F. M. Ranous—Republic, one year old, by Lancet; dam, Sligart.
S. S. Williams—Dolly, sucking colt.
I. S. Mathews—Frank Bartle, one year old, by Frank Tolman.

Farm Horses.

H. L. Davis—Frank and Pluck.
J. W. Evans—Jake and Polly.

Horses in Families.

Jake Kepler—Murphy filly, thirteen years old; Mountain Maid, two years old; Jenny Lind, one year old; and Gobbler, sucking colt.

CATTLE.

Thoroughbred.

Quinn & McConnell—Ayrshire bull, Colonel Lyman, two years old; Ayrshire bull calf, F. D. Curtis, four months old; Ayrshire cow, Janet Fourth, three years old; Ayrshire cow, Harriet Chauncey, two years old; Ayrshire calf, Belle of Siskiyou, three months old.
James A. Davidson—Devon bull, Duke Third, four years old.

Graded.

James Quinn—Billy, four months old, by Ayrshire bull Pioneer.
G. K. Godfrey—Silk, five years old, unknown; Yahow, four months old, unknown.
D. B. Warren—Cow Bess, four years old, unknown.
James Quinn—Lena, four year's old, half Durham (Cole's stock.)

Herd of Cows.

Quinn & McConnell—Ayrshire herd, Janet Fourth, Rose Fourth, Harriet Chauncey, Colonel Lyman, F. D. Curtis, and Belle of Siskiyou.

Cows Sweepstakes.

Quinn & McConnell—Janet Fourth, three years old—thoroughbred Ayrshire cow.

Sucking Calves.

C. McNulty—Dolly Varden, four months old—half-breed Ayrshire; Daisy, four months old—half-breed Ayrshire.

SHEEP AND HOGS.

Hiram Richardson—Thoroughbred ram Sam, five years old; half-breed lamb, Hiram, five months old.
Wake Miller—Berkshire breeding sow, two years old; Berkshire boar, two years old.
James A. Davidson—Berkshire pig, Brigham Young, one year and two months old.

ARTICLES EXHIBITED AT THE PAVILION.

The exhibits at the Pavilion are on a more extensive scale this year than ever before. Mrs. N. E. Hilt, of Cottonwood, is entitled to the place of honor among exhibitors at the Pavilion, both on account of the great number and variety of the articles she had on exhibition, as well as their excellent quality. She exhibits as follows: Three varieties of peaches; one lot black walnuts; two varieties of grapes; two of pears; twenty-eight varieties of apples; four kinds of apples, dried; jellies as follows: blackberry, wild crab apple, peach, wild plum, golden drop, and grape; jams as follows: crab apple, Siberian crab, and wild crab; three boxes honey in the comb; two varieties blackberry wine; six kinds of beans; a lot of hops, two bottles of blackberry wine, a bunch black Hamburg grapes; a squash, and a lot of tomatoes; cone and shell basket, and needle cushion; canned fruit as follows: blackberries, peaches, golden drop, tomatoes, apple sauce, sweet apple butter, wild crab apple, tomato preserves, grapes, and currants.

W. J. Evans exhibits a lot of sweet potatoes, seven varieties of apples, and a squash.

Mrs. L. Huseman exhibits a washing machine, made by Gilbert Lanphier.

B. F. Smith places on exhibition four paintings of his own execution, as follows: one of Mount Shasta, one of Mount Washington, one of Castle Rock, and one of Birney Falls.

Mrs. Iffland exhibits one rug, one basket of flowers, worsted, and one footstool.

Mrs. Autenreith makes an exhibit of autumn leaves.

Miss Mary Stine exhibits a bead basket.

E. Steele, Esq., exhibits a sack of wheat, raised by H. N. Eddy.

Mrs. Rogler exhibits a specimen of bead work.

Miss Mary Greenough exhibits a crochet collar.

Charles Schlicht exhibits a sack of flour.

Mrs. H. L. Davis exhibits seventeen varieties of apples; dried fruit as follows: peaches, blue plums, peeled peaches, green gage plums, apples, corn, peas, tomatoes, and wild plums; and beans as follows: red pink-eyed, speckled, Aunt Margaret, and white soup.

Mr. H. L. Davis exhibits three varieties of potatoes—the early blue, early Goodrich, and early rose; also, a sack of oats and a sack of barley.

Mrs. Buckmaster exhibits a tidy—crochet work; and Miss Lotta Hanford a pair of worsted slippers.

Samuel B. Buckmaster exhibits some framed pictures, and some specimens of penmanship.

Miss Kate Iunker—Picture in worsted work.

Miss Isabella Skinner—Tidy.

Mrs. L. Tickner—Bead basket, specimen of lace.

James Vance—Specimens of horseshoes; onion, raised by George Nourse, Link River.

F. M. Ranous—Gate regulator, specimens of gate latches.

Mrs. Eubanks—Four varieties apples.

Mrs. D. Merrick—One Weed sewing machine, two shirts.

Mrs. R. Nixon—Grape and currant jellies, preserved tomatoes and wild plums, tomato pickles, tomato catsup.

James Quinn—Lot of pears, coop of dark Brahma chickens.

Mrs. Field—Two bedquilts, one of them of silk, and some lace.

Mrs. Nordheim—Two pairs slippers, some pears.

Mrs. A. Wetzel—Pincushion.

Mrs. H. B. Gillis—Silk embroidery.

Mrs. H. Anderson—Two bedquilts.

D. B. Warren—Hubbard squash, four varieties pears.

Miss Aggie Vance—Piece of patchwork.

Master Willis W. Moore—Loaf of bread.

H. Wells—Some beets, can of butter for Winter use, six pounds of fresh butter, jar of tomato butter, loaf of bread.

Sisters of Mercy—Sofa pillow.

Mrs. Moore—Two bottles grape wine, lot dried plums.

Master Henry Hazlitt—Twenty-three varieties apples, lot sweet potatoes.

Mrs. Fultz—Loaf bread, bottle fresh currants, bottle fresh gooseberries, blackberry and Siberian crab apple jams, currant and Siberian crab apple jellies.

Mrs. Duenkel—Infant's dress.

Miss Lizzie Nixon—Suit of children's underclothing.

H. W. Moore—Four varieties apples, Egyptian blood beets, carrots, white English turnips, California blue, red kidney, and meshanic potatoes.

Mrs. A. Klinge—Bouquet of coxcomb and other flowers.

Mrs. C. H. Pyle—Bouquet of dried grasses, and one of flowers.

Prof. G. K. Godfrey—Greeley raddish.

F. W. Chapin—Box potatoes of the Peerless variety.

Mrs. Shonessay—Two tatting collars, tatting trimming.

Miss Jennie Delong—Patchwork bedquilt, crochet tidy, nightgown.

Mrs. C. Bonhert—Worsted crochet tidy, cotton crochet tidy.

Miss Kate Peters—Crochet tidy in wool, also scarf.

Miss Mary Schlicht—Crochet collar, lace collar.

Miss Dora Peters—Crochet pincushion.

Mrs. C. Ehret—Case of millinery goods, a Wilson shuttle sewing machine.

Mrs. Nordheim—Rug.

Mrs. E. Autenrieth—Cauliflower.

Mrs. Lafferty—Fluting by hand, also by machine.

Miss Betty Pashburg—Two crochet tidies.

Mrs. E. Wadsworth—Two chromos, one a picture of cherries, the other a basket of fruit; wreath of Autumn leaves, knit sofa cushion, set of crochet mats, five pieces; infant's crochet sack.

James A. Davidson—Five varieties corn, late rose potatoes, beets, mammoth squashes, lot of early flat turnips.

P. G. Strickland—Four Singer sewing machines.

Samuel Jackson—Pumpkin, two varieties of corn, lot of potatoes, and some varieties of apples.

Miss Annie Brown—Patchwork.

Miss Mary Wadsworth—Three pairs lamp mats, worsted crochet work.

Mrs. Bisbee—Bouquet of flowers.

Hiram Richardson—Lot of turnips, some blood beets, some early Goodrich potatoes, and three varieties of corn.

Mrs. L. Huseman—One bottle currant wine (1871), one bottle currant wine (1872), one jar pickled plums, two bars soap.

Miss Isabel Skinner—One tidy.

Mrs. F. W. Chapin—One box Peerless potatoes.

Miss Betty Pashburg—Two crochet tidies.

Mrs. Chase—Black silk dress.

F. J. King—Salt from Shasta River Salt Works.

Charles Peters—Keg of lager.

H. Scheld—Keg of lager.

Mrs. R. O. Dewitt—Tomato preserves.

C. H. Pyle—Coop of light Brahma chickens.

A. Eigle—Six varieties grapes.

Joseph McNulty—Variety cabbages.

S. Fertig—Large watermelon.

PREMIUMS AWARDED.

FIRST DEPARTMENT.

CLASS I—THOROUGHBRED HORSES.

Animal.	Exhibitor.	Residence.	Prem.
Best stallion, Gladiator	Robert Redding.	Little Shasta	$50 00

CLASS II—GRADED HORSES.

Animals.	Exhibitors.	Residence.	Prems.
Best stallion, Victor, seven years old, by Gladiator	Patrick Kiernan	Shasta Valley	$20 00
Best seven years old mare, Alamode, by Rifleman	C. F. Hammond	Scott Valley	$15 00
Best three years old mare, Mannita, by Rifleman, dam Minnie Rifle	J. C. Tallman	Rogue River Val.	$10 00
Best two years old filly, Sally, by Gladiator	James Quinn	Yreka	$5 00
Best one year old filly, Jenny Lind, by Lodi	Jacob Kepler	Bogus	$5 00
Best sucking colt, Gobbler, by Lodi	Jacob Kepler	Bogus	$5 00

CLASS III—HORSES OF ALL WORK.

Animals.	Exhibitors.	Residence.	Prems.
Best four years old stallion, Sire, by Sir Richard	Frank Adkins	Yreka	$15 00
Best nine years old mare, Polly	J. W. Evans	Little Shasta	$10 00

CLASS IV—DRAUGHT HORSES.

Animals.	Exhibitors.	Residence.	Prems.
Best three years old horse Turk, by Lion Heart	John Neilon	Shasta Valley	$10 00
Best five years old mare, with colt, Nelly	S. S. Williams	Virginia Ranch	$10 00

CLASS V—ROADSTERS.

Animals.	Exhibitors.	Residence.	Prems.
Best four years old stallion, Ashland, by Sligart	Henry Hyer	Yreka	$25 00
Best gelding of any age	J. N. T. Miller	Rogue River Val.	$20 00
Best mare of any age, Red Maria	Robert Redding.	Little Shasta	$20 00

CLASS VII—ROADSTER TEAMS.

Animals.	Exhibitor.	Residence.	Prem.
Best roadster team in the county	Henry L. Davis.	Little Shasta	$10 0

CLASS IX—COLTS.

Animals.	Exhibitors.	Residence.	Prems.
Best one year old colt, Frank Bartle, by Frank Tallman	I. S. Mathews	Fort Jones	$7 50
Best sucking colt, Dolly	S. S. Williams	Virginia Ranch	$5 00

CLASS X—FARM HORSES.

Animals.	Exhibitors.	Residence.	Prems.
Best farm team in the county	J. W. Evans	Little Shasta	$10 00
Best family, consisting of Murphy Filly, thirteen years old; Mountain Maid, two years old; Jenny Lind, one year old; and Gobbler, sucking colt	Jacob Kepler	Bogus	$20 00

Judges—E. Shearer, J. A. Davidson, Sam. Jackson.

SECOND DEPARTMENT.

CLASS I—THOROUGHBRED CATTLE.

Animals.	Exhibitors.	Residence.	Prems.
Devon.			
Best four years old bull, Duke Third	J. A. Davidson	Scott Valley	$25 00
Ayrshire.			
Best two years old bull, Colonel Lyman.	Quinn & McConnell.	Yreka	$15 00
Best bull calf, F. D. Curtis	Quinn & McConnell.	Yreka	$5 00
Best three years old cow, Janet Fourth	Quinn & McConnell.	Yreka	$15 00
Best two years old cow, Harriet Chauncey	Quinn & McConnell.	Yreka	$15 00
Best sucking calf, Belle of Siskiyou	Quinn & McConnell.	Yreka	$5 00

CLASS II—GRADED CATTLE.

Animals.	Exhibitors.	Residence.	Premiums.
Best cow	G. K. Godfrey	Yreka	$10
Best herd of cattle of any one breed, not less than five, and owned in the county	Quinn & McConnell.	Yreka	$20
Sweepstakes.			
Best cow, of any age or stock	Quinn & McConnell.	Yreka	Silver pitcher—$25
Best sucking calf	Christoph. McNulty.	Yreka	Special premium—$5

Judges—I. S. Mathews, S. S. Williams, J. W. Evans.

THIRD DEPARTMENT.

SHEEP.

Animals.	Exhibitors.	Residence.	Prems.
Best five years old ram, Sam	Hiram Richardson...	Willow Creek	$10 00
Best ram under one year of age	Hiram Richardson...	Willow Creek	$5 00

Judges—I. S. Mathews, S. S. Williams, J. W. Evans.

FOURTH DEPARTMENT.

SWINE.

Animals.	Exhibitors.	Residence.	Premiums.
Best fourteen months old Berkshire boar	James A. Davidson.	Scott Valley...	$10
Best two years old Berkshire boar	Wake Miller	Scott Valley...	Special premium—$5
Best Berkshire breeding sow	Wake Miller	Scott Valley...	$10

Judges—George Smith, H. L. Davis.

FIFTH DEPARTMENT.

MISCELLANEOUS.

Articles.	Exhibitors.	Premiums.
Greatest quantity and variety of canned fruits	Mrs. N. E. Hilt	$5 00
Best blackberry wine	Mrs. N. E. Hilt	$2 50
Best honey	Mrs. N. E. Hilt	$5 00
Apples, twenty-eight varieties	Mrs. N. E. Hilt	$10 00
Best lot of peaches	Mrs. N. E. Hilt	$5 00
Tomato preserves	Mrs. R. O. Dewit	$2 00
Best pickle plums	Mrs. L. Huseman	Diploma.
Currant wine	Mrs. L. Huseman	$2 50
Soap	Mrs. L. Huseman	$2 50
Tomato pickles	Mrs. R. Nixon	$2 00
Tomato catsup	Mrs. R. Nixon	Diploma.
Best fresh fruit	Mrs. J. Churchill	$2 00
Crab apple jam	Mrs. M. Fultz.	$2 00
Currant jelly	Mrs. M. Fultz.	$2 00
Fresh currants and gooseberries, three years old	Mrs. M. Fultz	Diploma.
Tomato butter	H. Wells	Diploma.
Can butter	H. Wells	$10 00
Fresh butter	H. Wells	Diploma.
Best loaf of bread	Master Willis W. Moore	$2 50
Apples, twenty-two varieties	Master Henry Hazlitt	$7 50
Sweet potatoes	Master Henry Hazlitt	$5 00
Best grape wine	Mrs. Moore	$5 00
Penmanship and pen drawing	S. B. Buckmaster	$5 00
Best exhibit of oil paintings	B. F. Smith	$10 00
Best worsted embroidered slippers	Miss Lotta Hanford	$2 00
Worsted crochet tidy	Miss Kate Peters	$2 00
Best worsted crochet shawl	Miss Kate Peters	$5 00
Worsted crochet toilet mats	Miss Mary Wadsworth	$2 00
Best patchwork	Miss Aggie Vance	$2 00
Crochet pincushion	Miss Dora Peters	$2 00
Fine plain sewing	Miss Lizzie Nixon	$2 00
Embroidered picture	Miss Kate Iunker	$2 00
Crochet collar	Miss Mary Schlicht	$2 00
Crochet collar	Miss Mary Greenough	Diploma.
Basket of worsted flowers	Mrs. Iffland	Diploma.
Best hearth rug	Mrs. Iffland	$5 00
Best exhibit and greatest number of articles by one person	Mrs. Iffland	$10 00
Tatting collars	Mrs. Shonessy	Diploma.
Specimen of tatting	Miss Jennie Delong	$2 00
Patchwork bedquilt	Miss Jennie Delong	Diploma.
Best cotton crochet chair tidy	Mrs. J. Buckmaster	$2 00
Best worsted embroidered slippers	Mrs. G. A. Nordheim	$2 00
Finest collection of cut flowers	Mrs. W. Bisbee	$2 00
Best embroidered lace	Mrs. Field	$2 00
Best worsted bedquilt	Mrs. Field	$5 00
Silk bedquilt	Mrs. Field	Diploma.
Embroidered wall-pocket	Mrs. F. Rogler	Diploma.
Cone and shell basket	Mrs. N. E. Hilt	$5 00
Best worsted embroidered sofa cushion	Sisters of Mercy	$5 00
Finest collection of straw flowers	Mrs. C. H. Pyle	Diploma.
Best exhibit of millinery goods	Mrs. C. Ehret	$5 00
Knitted worsted sofa pillow	Mrs. E. Wadsworth	Diploma.
Best wreath of Autumn leaves	Mrs. E. Wadsworth	$2 00
Bead basket	Mrs. S. Autenrieth	$2 00

MISCELLANEOUS—Continued.

Articles.	Exhibitors.	Premiums.
Best made gentleman's shirt	Mrs. D. Merrick	$5 00
Silk embroidery	Mrs. H. B. Gillis	Diploma.
Worsted crochet chair tidy	Mrs. C. Bonhart	Diploma.
Ladies' black silk suit, work considered unexceptionable	Mrs. Chase	$5 00
Fluting by hand and by machine	Mrs. Laferty	Diploma.
Wire wall-pocket	Miss Mary Stine	Diploma.
Crochet chair tidy	Miss Betty Pashburg	Diploma.
Bouquet of coxcomb and pansies	Mrs. A. Klinge	Diploma.
Exhibit of pears	D. B. Warren	$3 00
Best exhibit of carrots	D. B. Warren	$2 50
Best exhibit of squashes	D. B. Warren	$2 50
Best exhibit of dried fruit, eight varieties	Mrs. H. L. Davis	$5 00
Best exhibit of fifty pounds of wheat	E. Steele	$5 00
Best sack of flour	Charles Schlicht	$5 00
Best exhibit of fifty pounds of potatoes	H. L. Davis	$10 00
Best exhibit of beets	J. A. Davidson	$2 50
Corn, five varieties	J. A. Davidson	Diploma.
Best exhibit of pumpkins	Samuel Jackson	$2 50
Corn, two varieties	Samuel Jackson	Diploma.
Watermelon	Master Lander Fertig	$2 50
Specimen of horseshoes	James Vance	Sp'l $5 00
Gate regulators and gate latches	F. M. Ranous	Sp'l $5 00
Best exhibit of buckskin gloves	P. Strickland	$5 00
Exhibition of dark Brahma fowls	James Quinn	$3 00
Best exhibit of light Brahma fowls	James Vance	$3 00

TRANSACTIONS

OF THE

BAY DISTRICT AGRICULTURAL SOCIETY,

FOR

THE YEAR 1872.

FINANCIAL REPORT.

Date.	On what account.	Amount.
1872.	*Receipts.*	
Jan. 1......	Balance..	$802 49
	Receipts at Park..	129 00
	J. R. Dickey, rent...	300 00
Jan. 4......	Killip & Covey, pool privilege..........................	262 50
	J. R. Dickey, life membership...........................	150 00
Jan. 16.....	Receipts at Park..	117 00
Jan. 17.....	Receipts at Park..	91 00
Jan. 18.....	Receipts at Park..	121 00
	J. L. Eoff, fine...	25 00
Jan. 19.....	Receipts at Park..	82 00
Jan. 20.....	Receipts at Park..	86 00
	C. Arnold, entrance..	10 00
Jan. 26.....	Receipts at Park..	341 00
	P. Farrell, entrance..	10 00
Jan. 31.....	Receipts at Park..	72 00
	Entries to running race..........	60 00
	Killip & Covey and J. R. Dickey, for purse.......	93 25
Feb. 1......	J. R. Dickey, rent...	300 00
Feb. 5......	Killip & Covey, pool privilege..........................	175 00
	Receipts at Park..	78 00
	Entries to running race.....................................	120 00
	Receipts at Park..	82 00
March 1...	J. R. Dickey, rent...	300 00
	Receipts at Park	48 00
March 11..	Killip & Covey, pool privilege..........................	175 00
March 16..	Receipts at Park..	70 00
March 30..	J. L. Eoff, fine...	100 00
April 3.....	Killip & Covey, pool privilege..........................	175 00
	J. R. Dickey, rent...	300 00
May 1......	J. R. Dickey, rent...	300 00
May 14....	Entries to races..	1,100 00
	Receipts at Park..	352 00
May 15....	Entries to races..	215 00
May 15....	Receipts at Park..	169 00
May 16....	Entries to races..	620 00
	Receipts at Park..................................	188 00
May 17....	Entries to races..	420 00
	Receipts at Park..	227 00

Date.	On what account.	Amount.
May 18....	Entries to races	$200 00
	Receipts at Park	475 00
May 20....	Killip & Covey, pool privilege	1,650 00
	Entrance to race	40 00
June 22....	J. R. Dickey, rent	300 00
July 1......	Killip & Covey, pool privilege	350 00
July 2......	Receipts at Park	354 00
July 10....	J. R. Dickey, rent	300 00
August 1..	J. R. Dickey, rent	300 00
August 20	State warrant appropriation	3,000 00
August 26	Entries to races	180 00
	Receipts at Park	914 50
August 27	Entries to races	225 00
	Receipts at Park	764 00
August 28	Entries to races	600 00
	Receipts at Park	927 00
August 29	Entries to races	525 00
	Receipts at Park	775 00
August 30	Entries to races	775 00
	Receipts at Park	1,009 00
August 31	Entries to races	400 00
	Receipts at Park	1,352 00
	Killip & Covey, pool privilege	1,750 00
Sept. 12...	Point Lobos Road Company	750 00
Sept. 13...	Killip & Covey, pool privilege	175 00
	Entrance to race	100 00
Sept. 14...	Entrance to race	100 00
	J. R. Dickey, rent	300 00
Oct. 1......	J. R. Dickey, rent	300 00
Oct. 9......	Killip & Covey, pool privilege	175 00
Nov. 1.....	J. R. Dickey, rent	300 00
	Overdraft on treasury	991 57
		$27,623 21
1872.	*Disbursements.*	
Jan. 1......	Gatekeepers and ticket clerk	$13 00
	Turf Gallery Stable, buggy hire	5 00
	F. Covey, distributing bills	2 50
	J. R. Dickey's bill	20 00
	Wm. Woodward, purse moneys	110 00
	Alta California, advertising and printing	325 05
	Morning Call, advertising	108 25
	Chronicle, advertising	66 25
	Balance office rent to date	5 00
	Adams, Blinn & Co., lumber	43 50
	California Mills, lumber	5 09
	Jones, Pullman & Co., bill	7 00
	H. J. Booth & Co., bill	8 05
	Marsh, Pilsbury & Co., bill	12 95

Date.	On what account.	Amount.
Jan. 1......	Main & Winchester, bill, premium 1871	$25 00
	A. Mailliard, goblet, premium 1871	35 00
Jan. 5......	J. L. Eoff, rent	300 00
	J. L. Eoff, purse, two thirds gate receipts, Dec. 9th, 1871	75 00
Jan. 16.....	M. E. Joice, purse, two thirds gate receipts	52 75
	Gatekeepers	8 00
	F. Covey, bill	2 50
Jan. 17.....	Sargent & Pfou, purse, two thirds gate receipts	39 75
	Gatekeepers	8 00
	Distributing bills	2 50
Jan. 18.....	Wm. Woodward, purse, two thirds gate receipts	60 25
	Gatekeepers	8 00
Jan. 19.....	C. S. Crittenden, purse, two thirds gate receipts	38 75
	Gatekeepers	8 00
Jan. 20.....	C. Arnold, purse	100 00
	Gatekeepers	8 00
	Turf Gallery Stable, buggy hire and toll	5 50
Jan. 26.....	P. Farrell, purse	100 00
	Gatekeepers and ticket sellers	10 50
	Turf Gallery Stable, bill	83 50
	Alta Job Office, printing	40 00
Jan. 31.....	Henry Welsh, purse	200 00
	Gatekeepers	8 00
	Morning Call, advertising	57 00
Feb. 1......	J. L. Eoff, rent	300 00
	J. M. Buffington, bill	10 00
	J. R. Dickey, bills	348 75
Feb. 5......	Bulletin, advertising	3 00
	Alta job office, printing	40 00
	Purse, two thirds gate receipts	34 50
	Gatekeepers	8 00
	Turf Gallery Stable, buggy hire and toll	5 50
Feb. 21....	M. E. Joice, purse	200 00
	Gatekeepers	8 00
	Turf Gallery Stable, buggy hire	5 00
	Chronicle, advertising	104 00
March 1...	J. L. Eoff, rent	300 00
	Gatekeepers	8 00
	Purse, two thirds gate receipts	16 67
	Municipal license	30 00
	J. M. Buffington, bill	10 00
	J. M. Duncan, traveling expenses	20 00
March 16..	Gatekeepers	8 00
	Alta, Call, and Chronicle, advertising	15 00
April 3....	National Turf Association, assessment	75 00
	J. L. Eoff, rent	300 00
	J. H. O'Brien, bill	11 00
	W. J. Tustin, bill	35 00

Date.	On what account.	Amount.
	J. M. Buffington, bill	$10 00
	B. Carlin and others, labor	54 00
	Horse for use on track	100 00
April 15...	Personal property tax 1871-2	43 20
	Messenger to Alvarado	7 50
	Kimball Manufacturing Co., bill	100 00
May 1......	J. L. Eoff, rent	300 00
	J. M. Buffington, bill	10 00
	A. D. Carpenter, Secretary's salary, three months	300 00
May 15....	A. C. St. John, purse	570 00
	William Woodward, purse	280 00
May 16....	J. S. McCue, purse	142 50
	H. L. White, purse	142 50
May 17....	T. Sargent, purse	570 00
May 18....	Alta Job Office, printing	100 00
	J. S. McCue, purse	237 50
	Frank Covey, bill	12 50
	A. L. Harris, bill	10 00
	George Birdsall, bill	20 00
	William H. Leigh, bill	5 00
	J. Keefe, bill	20 00
	S. N. Stranahan, bill	20 00
May 20....	A. F. Smith, purses	1,045 00
	George Covey, distributing bills	10 00
	Tolls paid by Secretary	2 50
	Premium on $160 gold	2 40
	Bulletin, advertising	32 50
	B. Conor and others, purses	375 00
	Wells, Fargo & Co., express on blanks, etc., National Association	3 50
June 1.....	A. D. Carpenter, Secretary's salary, two months.	200 00
	Charles Babb, bill	20 00
	J. M. Buffington, bill	30 00
	Dickerson & Sargent, purses	380 00
	Keyt & Co., bill	20 00
June 8.....	B. Mahoney, bill	7 00
	Alta Job Office, printing	40 00
June 10...	A. C. St. John, purse	380 00
June 14...	Municipal license	30 00
	N. P. Cole & Co., bill	15 00
June 19...	H. W. Seale, purses	855 00
June 22...	Alta Job Office, printing	40 00
	Daily Call, advertising	46 00
	A. F. Smith, purse	95 00
	Postage stamps and express envelopes	20 00
	J. L. Eoff, rent	300 00
June 24...	J. R. Dickey, bills	300 00
July 2.....	Gatekeepers	8 00
	Sacramento Union, advertising	34 00

Date.	On what account.	Amount.
	Bulletin, advertising	$3 50
	J. R. Dickey, bill	30 00
	H. W. Seale, purse, one third gate receipts	93 00
July 11....	J. L. Eoff, rent	300 00
August 3..	J. L. Eoff, rent	300 00
	Express on Controller's warrant	1 00
	Telegram to Woodland.	1 00
	B. E. Harris, bill	2 00
August 23	Discount on Controller's warrant	210 00
August 26	Stallion purse	570 00
	3-minute purse	712 50
August 27	Pacing purse	712 50
August 28	Free for all purse	950 00
August 29	2:35 purse	712 50
	Saddle pacing purse	142 50
August 30	Two miles and repeat purse	950 00
	2:50 purse	712 50
August 31	2:40 purse	475 00
	Pacing purse	475 00
	S. N. Stranahan, ticket clerk	30 00
	G. D. Wyman, doorkeeper	24 00
	Premiums on stock	3,340 00
	J. L. Eoff, rent	300 00
Sept. 2.....	W. H. Cummings, bill chairs	18 00
	Edward Boss, bill labor	70 00
	Peter Bohlen, bill labor	70 00
	Municipal license	30 00
	Freight on stock exhibited	20 35
	Julius Harned, distributing bills	5 00
	Gavin J. W. Gibb & Co., labor	4 00
	Thomas Dolan, gatekeeper	24 00
	George Birdsall, gatekeeper	24 00
	J. Keefe, gatekeeper	24 00
	A. L. Harris, ticket seller	15 00
	James Dunn, horse hire	12 00
Sept. 3.....	J. M. Buffington, bill	45 00
Sept. 5.....	Freight on stock exhibited	91 60
Sept. 10...	Thomas Meehan, labor	40 50
Sept. 11...	Freight on stock exhibited	147 00
	John Brach, distributing bills	17 50
	Morning Call, advertising	124 50
Sept. 12...	Crittenden & Dalton, bill	15 00
	Pacific Livery Stable, bill	68 00
	C. L. Place & Co., hay and straw	756 00
	Charles Deaves, bill	25 00
	H. Rosekrans & Co., bill	32 00
	Keyt & Co., bill	45 00
	Fashion Stable, bill	30 00
Sept. 13...	Greenbaum Bros., bill	18 00
	Elliott & Bro., bill	69 16

Date.	On what account.	Amount.
	Taylor & Co., bill	$22 00
	Baker & Hamilton, bill	71 56
	J. N. Killip, bill	16 00
	Charles W. Kinsman, bill	86 50
	J. W. Cherry, bill	10 00
	B. Mahoney, bill	98 50
	A. S. Moore, bill	10 00
	J. G. Hodge & Co., bill	13 00
	Second Artillery Band, bill	386 25
	F. O'Kane, bill	72 00
	Norcross & Co., bill	19 50
	A. M. Simpson & Bro., bill	417 45
	George Loney, bill	15 00
	George Covey, bill	25 00
	James McCormick, bill	70 00
	Thomas Kelley, bill	7 00
	George Horton, bill	54 00
	G. H. Livingston, bill	43 00
	L. P. Fisher, bill	74 80
	Bulletin, bill	43 00
	Chronicle, bill	165 25
	California Demokrat, bill	12 00
	Alta Job Office, bill	306 50
	News Letter, bill	10 00
	Figaro, bill	15 00
	Spirit of the Times, bill	100 00
	California Journal, bill	20 00
	Abend Post, bill	12 00
	The Hebrew, bill	10 00
	Hebrew Observer, bill	15 00
	Oakland Transcript, bill	6 00
	Alta California, bill	362 50
Sept. 14...	Turf Gallery Stable, bill	155 00
	B. Carlin, bill	6 00
	Daniel Moran, bill	12 50
October 1.	J. M. Buffington, bill	15 00
	Robert Beck, freight on sheep	6 00
	M. S. Cook, bill	41 00
	A. D. Carpenter, salary to September 1st	300 00
Nov. 1......	J. L. Eoff, rent of Park to January 1st, 1873	300 00
	Total	$27,570 66

PREMIUMS AWARDED.

CLASS I—THOROUGHBRED HORSES.

Animals.	Exhibitors.	Residence.	Premiums.
Stallions.			
Best stallion, four years old and over, Monday	A. Mailliard	San Rafael	$60
Best stallion, two years old and under three, Aleck	John Hall	Alvarado	$40
Best stallion, one year old and under two, Mariner	A. Mailliard	San Rafael	$30
Best stallion, under one year, Capt. Harris	John Hall	Alvarado	$20
Mares.			
Best mare, four years old and over, Hennie Farrow	A. Mailliard	San Rafael	$50
Best mare, three years old, Alice May	John Hall	Alvarado	$40
Best mare, two years old, ———	John Hall	Alvarado	$30
Best mare, one year old, Belle	A. Mailliard	San Rafael	$20
Best mare colt, under one year, Lady Washington	John Hall	Alvarado	$20
Families.			
Best thoroughbred dam and four colts, Peggy Ringgold	John Hall	Alvarado	$60
Best dam, other than thoroughbred, and colts, Nora	Alexander Ely	Sonoma Co.	$50

CLASS II—HORSES OF ALL WORK.

Animals.	Exhibitors.	Residence.	Premiums.
Stallions.			
Best stallion, four years old and over, Don Juan	M. L. Britton	Redwood City	$40
Best stallion, three years old, Alexander, Jr	Alexander Ely	Sonoma	$30
Mares.			
Best mare, four years old and over, with colt by her side, Jennie	Seneca Daniels	Lakeville	$40
Best mare, three years old, Young Diamond	Josiah Sessions	Oakland	$25
Best mare, two years old, Maggie	August. Guerrero	Halfmoon Bay	$20
Best mare, one year old, Elizabeth	Alexander Ely	Sonoma	$15

CLASS III—GRADED HORSES.

Animals.	Exhibitors.	Residence.	Premiums.
Stallions.			
Best stallion, three years old and over, Inauguration	Alexander Ely	Sonoma	$50
Best stallion, ten years old, King Philip	E. Wilson	San Francisco	$30
Best stallion, one year old, Young Allen	Wm. Hamilton	San José	$20
Mares.			
Best mare, four years old and over, Ida Martin	M. L. Britton	Redwood City	$50
Best mare, three years old, Peg Woffington	E. Norton	San Francisco	$30
Best mare, two years old, Fannie Allen	Wm. Hamilton	San José	$20
Best colt, without reference to sex, Katy Darnelle	M. L. Britton	Redwood City	$20

CLASS IV—DRAUGHT HORSES.

Animals.	Exhibitors.	Residence.	Premiums.
Stallion.			
Best stallion, two years old, Black Sam	Daniel McCray	San José	$30
Mares.			
Best mare, four years old, with colt, Fannie	M. L. Britton	Redwood City	$40
Best mare, two years old, Gypsy	M. L. Britton	Redwood City	$20
Best mare, one year old, Anita	Page Brothers	San Francisco	$15
Best Clydesdale mare	M. L. Britton	Redwood City	Silv. gobl't $40

CLASS V—ROADSTERS.

Animals.	Exhibitors.	Residence.	Premiums.
Stallions.			
Best stallion, four years old and over, Irwin Davis	C. S. Crittenden	San Francisco	$50
Best stallion, three years old, Tom Patchen, Jr	Alexander Ely	Sonoma	$40
Mares.			
Best mare, four years old and over, Lucy Hewet	Michael Ryan	San Francisco	$40
Best mare, three years old, Bess Allen	Wm. Hamilton	San José	$30
Gelding.			
Best gelding, four years old and over, Sans-souci	B. F. Fish	Santa Clara	$40

CLASS VI—CARRIAGE HORSES.

Animals.	Exhibitors.	Residence.	Premiums.
Best matched span, owned by one person, Black George and Frank	B. F. Fish	Santa Clara	Silv. gobl't $50

CLASS VII—ROADSTER TEAMS.

Animals.	Exhibitors.	Residence.	Premiums.
Best roadster team, owned and used by one person, Abner and Cyrus	H. R. Covey	San Francisco	Goblet—$60

CLASS VIII—SADDLE HORSES.

Animals.	Exhibitors.	Residence.	Premiums.
Best saddle horse, White Horse Plume	Mrs. A. Carter	San Francisco	Bridle—$20

CLASS IX—COLTS.

Animals.	Exhibitor.	Residence.	Premiums.
Best exhibit of not less than six colts	John Hall	Alvarado	$50

CLASS X—SWEEPSTAKES.

Animals.	Exhibitors.	Residence.	Premiums.
Best stallion of any age, Ironclad	John Hall	Alvarado	Sil. pitch. $100
Best mare of any age, Peggy Ringgold	John Hall	Alvarado	Sil. pitch. $75

CLASS I—THOROUGHBRED CATTLE.

Animals.	Exhibitors.	Residence.	Premiums.
Durham Bulls.			
Best bull, four years old and over, Glencoe	C. Younger	San José	$50
Best bull, three years old, Lincoln	Charles Clark	San José	$30
Best bull, two years old, Third Grand Turk of Oak Home	W. L. Overhiser	Stockton	$25
Best bull, one year old, Tempest	C. Younger	San José	$20
Best bull calf, Moonlight	C. Younger	San José	$15
Durham Cows.			
Best cow, four years old and over, Sprightly	C. Younger	San José	$40
Best cow, three years old, Glenrose	C. Younger	San José	$30
Best cow, two years old, Norma	C. Younger	San José	$20
Best cow, one year old, Queen 1st	J. B. Redmond	Marin County	$15
Best heifer calf, Lady Booth	C. Younger	San José	$10
Devon Bulls.			
Best bull, four years old and over, Bloomfield	J. R. Rose	Lakeville	$50
Best bull, three years old, Phil Sheridan	J. R. Rose	Lakeville	$30
Best bull, two years old, Tecumseh	J. R. Rose	Lakeville	$25
Best bull, one year old, Sonoma	J. R. Rose	Lakeville	$20
Best bull calf, May Dock	Seneca Daniels	Lakeville	$15

CLASS I—THOROUGHBRED CATTLE—Continued.

Animals.	Exhibitors.	Residence.	Premiums.
Devon Cows.			
Best cow, four years old and over, Maud 2d	J. R. Rose	Lakeville	$40
Best cow, three years old, Fairy 2d	Seneca Daniels	Lakeville	$30
Best cow, two years old, Curley	J. R. Rose	Lakeville	$20
Best cow, one year old, Rena	Seneca Daniels	Lakeville	$15
Best heifer calf, Gypsy	Seneca Daniels	Lakeville	$10
Alderney Bulls.			
Best bull, four years old and over, Emperor Billy	A. Mailliard	San Rafael	$50
Best bull calf, San Rafael	A. Mailliard	San Rafael	$15
Alderney Cows.			
Best cow, four years old and over, Eliza	A. Mailliard	San Rafael	$40
Best cow, two years old, Cora	A. Mailliard	San Rafael	$20
Best heifer calf, Rose	A. Mailliard	San Rafael	$10
Ayrshire Cattle.			
Best bull, four years old and over, Alexander	T. H. Selby	San Francisco.	Silv. gobl't $75
Best exhibit of Ayrshire cattle, six head	F. D. Atherton	San Mateo	Silv. gobl't $75
Jersey Cattle.			
Fine exhibition of Jersey cattle, five head	P. L. Weaver	Napa	Special. Silver cup $50

CLASS II—GRADED CATTLE.

Animals.	Exhibitors.	Residence.	Premiums.
Bulls.			
Best bull, three years old and over, Water Prince 1st	R. Ashburner	San Mateo Co.	$30
Best bull calf, Ajax	R. Ashburner	San Mateo Co.	$10
Cows.			
Best cow, three years old and over, Dew Drop	R. Ashburner	San Mateo Co.	$25
Best cow, two years old, Ellen Lynn	Charles Clark	San José	$20
Best cow, one year old, Flora	R. Ashburner	San Mateo Co.	$15
Best heifer calf, Roseleaf	R. Ashburner	San Mateo Co.	$10
Best herd of any one breed, not less than ten, owned by any one person	C. Younger	San José	$75

CLASS III—CATTLE SWEEPSTAKES.

Animals.	Exhibitors.	Residence.	Premiums.
Best bull of any age or stock, Glencoe	C. Younger	San José	Sil. pitcher $75
Best bull, and five calves under one year, Glencoe	C. Younger	San José	$50
Best cow, of any age or stock, Queen 1st	J. B. Redmond	Marin Co.	Sil. pitcher $50
Best exhibition of any kind	C. Younger	San José	Gold medal.

STOCK SHEEP AND MUTTON.

Animals.	Exhibitors.	Residence.	Premiums.
Best ram, two years old and over, General Scott	Peter Saxe	San Francisco.	$20
Best ram, one year old, Duke	John Judson	Bloomfield	$15
Best three ewes, two years old and over	John Judson	Bloomfield	$15
Best three ewes, under two years old	John Judson	Bloomfield	$10
Spanish Merino.			
Best rams, two years old and over. Challenge and Wide-awake	Smith & Overhiser	Stockton	$30
Best three ram lambs	Smith & Overhiser	Stockton	$20
Best three ewes, two years old and over	Smith & Overhiser	Stockton	$20
Best five ewe lambs	Smith & Overhiser	Stockton	$20
Silesian Sheep.			
Best ram, two years old and over, five rams	Robert Beck	Sacramento	$30
Best ewe, two years old and over, five ewes	Robert Beck	Sacramento	$20
French Merino.			
Best ram of any age, two rams	Page Brothers	San Francisco	$30
Best ewe of any age, five ewes	Page Brothers	San Francisco	$20
Cotswold.			
Best three ewes, two years old and over	John Judson	Bloomfield	$20
Best five ewe lambs	John Judson	Bloomfield	$20
Sweepstakes on Sheep.			
Best buck of any age or breed, Challenge	Smith & Overhiser.	Stockton	Silv. gobl't $50
Best ewe of any age or breed, (no name)	Saxe & Jewett	Kern County	Silv. gobl't $40
Best pen of five ewes of any age or breed	Smith & Overhiser	Stockton	Silv. gobl't $50

GOATS.

Animals.	Exhibitors.	Residence.	Premiums.
Cashmere and Angora.			
Best thoroughbred buck, Horace Greeley	J. P. Sargent	Gilroy	$50
Best thoroughbred ewe, Jennie	J. P. Sargent	Gilroy	$30

SWINE.

Animals.	Exhibitors.	Residence.	Premiums.
Best boar, under two years old, Boz	Peter Saxe	San Francisco	$20
Best boar, under one year old, Jack	Josiah Sessions	Oakland	$15
Best sow, under two years old, Beatrice	Peter Saxe	San Francisco.	$20
Best ten pigs, of any age or breed	Peter Saxe	San Francisco.	$40

POULTRY.

Animals.	Exhibitors.	Residence.	Premiums.
Best exhibition of poultry	Thomas Day	San Francisco.	Silv. gobl't $20

TRANSACTIONS OF THE

SOUTHERN DISTRICT

AGRICULTURAL SOCIETY,

FOR

THE YEAR 1872.

REPORT.

Board of Directors' Office,
Southern District Agricultural Society,
Los Angeles (Cal.), December 1st, 1872.

To the State Board of Agriculture:

Gentlemen: We have the honor to present the following report:

Our Fall meeting commenced on the thirteenth and terminated on the sixteenth of last month, and was, taking into consideration the infancy of our society, and the magnitude of the outlay attending the commencement of our undertaking, both gratifying and satisfactory.

Last year subscriptions to the amount of six thousand dollars were collected, while the receipts of the Fair amounted to five thousand dollars more. Yet, owing to the enormous expense incurred in the purchase of ground, erection of buildings, and other large and necessary expenditures, our society found itself, on the first of June last, indebted as follows:

On what account.		Amount.
Notes in bank	$10,500 00	
Overdraft	627 24	
Interest on above	1,960 00	
Note held by Newmark & Co	1,000 00	
Note held by I. Hellman	500 00	
Other bills	453 73	
		$15,040 97
Improvements this year		2,390 86
Real expenses of industrial exhibition and stock ground, including music, police, etc		621 25
Premiums on races		2,000 00
Premiums on stock		1,300 00
Premiums on industrial articles, etc		678 00
Total		$22,031 08
Per contra.		
Collected on assessments		$5,005 00
Entrance money		1,365 00
State appropriation, discounted		1,820 00

On what account.	Amount.
Gate money	$2,219 50
Pavilion receipts	465 50
Other receipts	655 98
Total	$11,531 08

It will be seen by the above that the present indebtedness of the society is ten thousand five hundred dollars—the amount of the original notes in bank—and that the society has no other accounts standing against it.

In all, five assessments were made and collected. Among the improvements made this year were twelve new stables, twenty-four new stock stalls, and a large amount of new fencing.

Inclosed are catalogues, enumerating all articles in our premium list, including premiums on stock, industrial articles, and speed programmes. Besides articles, etc., enumerated, the President and the Board of Directors awarded special premiums to exhibitors of stock, and articles of manufacture and agriculture, not mentioned in the catalogue.

Considering the limited means of our new association, the greatest inducements were held out to manufacturers, agriculturists, and raisers of stock, and premiums as advertised (and additional ones as stated above) were paid to all exhibitors.

Having secured the services of a permanent Secretary, a detailed account of all transactions, financial and otherwise, will be faithfully kept during the coming year, when we shall be able to present in our next annual report the inauguration of all new industries, and a multiplicity of facts touching the development of the resources of the counties embraced in the society's district.

We shall publish, in our next catalogue, the Act to encourage the planting and cultivation of fruit and shade trees, etc., approved March thirtieth, eighteen hundred and sixty eight. We have already taken steps to plant a thousand odd shade trees (the eucalyptus mostly) at the Agricultural Park grounds. The planting will be commenced as soon as possible after the first rains.

Very respectfully,
BEN. C. TRUMAN,
Secretary (for the Board of Directors.)

ADDRESS OF PRESIDENT ROSE.

LADIES AND GENTLEMEN: We meet for the second time in the enjoyment of our District Fair; to exhibit with pride the productions of the maiden, the wife, the husbandman, the mechanic, and the stock raiser. It seems but yesterday when we held our first Fair, and, Minerva-like, we jumped full-grown into existence, second only to the State Fair, and not even second to that in the extent and natural beauty of our grounds, or even in the beauty and permanence of our improvements. We of the Southern District will be pardoned in feeling pride in what we have done in so short a time, and all is due to the unanimity of our people; they have given their money freely, and all have ever been willing to assist with their counsel and work. I would like to mention the names of many, but I could not place them first, second, and so on, without doing some injustice. Nearly all have taken stock in the society who were able to do so and felt anxious in our success, and to make it in time the model Fair Ground in the State. We promise ourselves much; excelsior is our motto. This and coming years will be devoted to its adornment. We will begin, with the coming year, with the planting of trees. We have already engaged one thousand five hundred gum trees, and would be pleased that persons having ornamental trees that are not wanted that they give them to the society, who will plant them. We will lay out portions of the grounds into drives and walks. In time we expect to have a floral hall, fountains, lawns, flower gardens, perhaps a hotel, and make it the attractive place of Southern California. It will be a place where you will take your friend, or the stranger who visits our shores, to show him the capabilities of our climate; where you will take your family for recreation; where the invalid may stop to drink in our pure air and health; where he can almost hear the surf of the Pacific as it curls over the sands or booms against the rocks; where he can feel the fresh cooling breeze, almost spray, that comes from it to temper the noonday heat; where, by casting his eyes in a semi-circle around him, he can feast them on the ever-changing panorama of our mountain views; see the peaks of the Sierra Madre, snow-capped half the year, while he is surrounded by perpetual verdure, by the fragrance and bloom of the orange and lemon; where the geranium, rose, jasmine, and all the flora are in perpetual bloom, and the mocking bird will delight his ear by his ever-varying notes.

This is what we promise you. We ask that all should help. If there are those who know but little about what we are proposing to do, or even what we have done, we ask them to see and to join us in this laudable enterprise. We want the good will and assistance of every one in this district. We want all that are able, and have not taken stock yet, to take some of the stock not yet subscribed for. We want your money; but we can do without that better than without your good will. We want you to feel that this is, too, for your enjoyment; that it is also for your children. We especially wish and bespeak the good will and coöperative assistance of the ladies. We require their refining influence and correct taste. By woman's presence she makes man put on his best behavior. We will all be gentlemen drivers. Coarseness or rudeness will not be seen or heard, even on the race course. She will make us better. The horses even themselves will make greater efforts for the front when cheered on by the clapping of her fair hands; while the flowers will put forth their fairest forms and gayest colors when grown under her care and supervision. The fragrance of the rose will cling longer around it when plucked by her hand. Success without her cannot be; with her help and sympathy it is assured; for, put it as we will, the women are the governing and better half of creation; and the man that does not love and obey woman cannot have much good in him.

Nor is this enjoyment and beauty all that will grow out of our Fairs and beautiful Fair grounds.

The utilitarian part is so extensive that I have only time to make brief mention of a very small part. It emulates the daughter in the making adornments for home; the wife in filling the pantry with choice canned fruits, preserves, pickles, and other good things; the farmer in the getting better kinds of seed and tools, in the more thorough tilling the soil, resulting in increased productions; the stock raiser, by comparing what he sees of the different breeds and kinds of stock, makes more intelligent selections, and he will raise improved sheep, cattle, horses, and swine. The mechanic will get new ideas from his competing brother, and create a new desire to excel in his calling. It brings all into fair competition, where many will see improvements in every useful branch that adds to the use and comfort of man, and thus learn and improve one another.

We live in a land that will respond to all of our efforts. We can truly say "our lines are cast in pleasant places." To fully appreciate this, it is necessary to visit again the Atlantic States; for memory, with our childhood association, paints them fairer than we find them; and, with our return here, we find new advantages for California. We transfer "home, feeling of my heart, linger around me still," here. We find that our soil excels in the productions of almost every crop. We have six months to plant, and six months to reap, and as certain as time. The air is laden with vigor and health, and yet we have a tropical climate. All animals, when brought here from the Atlantic States, although aged, improve in size and beauty, and live longer. Even man attains a more perfect development. He can perform more labor, has more energy and life, and performs greater mental tasks. We have a dry climate, which even the Greeks understood to be superior for man. They accounted for the imbecility of the drunkard by saying that he had a moist soul; while, with justifiable pride, asserting that the noblest souls must belong to a climate that is dry—their country being a dry one.

To the farmer our dry season is invaluable, for it makes a certainty, that if he plants he will, too, reap, and with our wet lands and irrigation we have a certainty of a good crop every year. Irrigation, to the beginner, is looked upon as a task of extra labor, yet in time we all learn to like it and would not do without it; for the certainty of a crop alone amply pays this little labor, and in addition to this it is a fertilizer. Lands irrigated retain all their elements of fertility, as can be seen in all countries where irrigation is practiced, and you have the evidence before you even here. Look at your lands in your valley, some of which have been cultivated in corn and other crops for nearly a hundred years, and without the adding of manure are as fertile to-day as your virgin soil.

It is true we have much land which cannot be irrigated, and to the stranger this land would now look as if nothing could grow; but we, who have been here longer, know that in this appearances are deceptive; that different plant life has, different wants and natures; and that by taking advantage of our seasons—by plowing and sowing early—we can raise many kinds of crops on these lands. That different plants require a varying quantity of water, according to their kind, we learn by observing the different kinds of plants that grow here in the different seasons of the year. We find that with the first rains our grasses and many wild flowers start, grow, bloom, and at the close of the rainy season mature and die; then another vegetation springs up—even on our driest uplands—and apparently without any moisture, grows and matures during all of our dry season. We know that the cacti family grows, and only grows with luxuriance, on our dry and arid plains, where it does not rain sometimes for years; and yet, were you shown a leaf of this cactus, and without the knowledge where it grew, you would say, it must have grown in a very wet place, for it is nearly all water. Between this and the marsh rushes there is a wide range of plants, and some adapted to all degrees of moisture. We have already found that many plants and trees do well and grow on our driest soils, if we only utilize the rainfall of our ordinary seasons—nay, even our driest seasons—as oats, barley, wheat, castor bean, the almond, the olive, the grapevine, and many others.

But as I am a believer in the vine I will say something about that. It is no longer an experiment that it does well, without irrigation, on even our driest hillsides. You have vineyards in your town that do well without irrigation, and in my neighborhood, where the soil is much drier than your valley lands, we have planted vines on our driest hillsides and grown vineyards from cuttings, without water or irrigation, that are now producing grapes of the first quality. It is found, too, that some of the foreign varieties of grapes are better adapted to our dry seasons, producing larger crops, making a light table wine with finer bouquet—making a wine that cannot be surpassed. The reason why they are better adapted to our dry season is, that they ripen earlier, and form less sugar, but more tartaric acid and aroma, and in these qualities the Mission grape falls short. Ripening earlier, they make less draft on the soil for water; making less sugar, they have more nutriment to devote to tartar and oils that make flavor and bouquet. By planting different varieties we prolong the season for wine making, for we can begin our vintage six weeks earlier.

Of course care and cultivation are required to grow grapes without irrigation, especially when the vines are loaded with fruit, for then the vines make the heaviest drafts on water. By deep and mellow culture, allowing no weeds to grow, you will get your soil in the most favorable condition to perform its functions. The force to start and grow plants is derived from the sun. The inorganic material (a very small part of all plants) and all their water (a very large part of all plants) are taken up by the roots of plants; but the organic substance is derived from the surrounding atmosphere; and hence it is strictly true, that they are condensations from the air. The leaves, and green parts of plants, as bark, decompose carbonic acid, one of the ingredients of the air. This substance is composed of two elements, carbon and oxygen. The former is appropriated by the plant, and enters into the composition of the descending sap, from which forthwith organic products, such as starch, sugar, wood fibre, and acids, are made, whilst the oxygen is mostly returned to the air. The leaves of plants are the pumps drawing from the air carbonic acid, and water from the soil. They are, too, surface to expose to the sun, to evaporate part of the water, and to elaborate or assimilate part of it with what it gets from the air, which again, as sap, carries food to every part of the plant. If you have many leaves, therefore, then you have much surface, and much evaporation will take place, and much nutriment will be formed for the fruit. This explains why a tree or vine loaded with fruit requires more water than when it is small and without fruit; for grain and fruit are concentrated nutriment, and the more nutriment there is in fruit or grain, such as sugar or starch, the more will be the evaporation. This explains, too, why a soil loses its water when covered with weeds; for water is required to make their woody fiber and substance, and this water is lost to the tree, vine, or crop, that may be grown on the land. A deep, pulverized soil is the most favorable condition to store moisture and warmth. It is your bank of deposit that will honor your draft. It stores up warmth by day, and at night, being warmer than the surrounding atmosphere, it condenses moisture from it, whilst gradually it gives out its warmth and equalizes the temperature.

Plant life is the storing up of heat, which it gets from the sun. This is one reason of our marvelous productions; for our sunshine is almost perpetual. The sun stores up its heat in the oak, the growth of a thousand years; in the grape, the growth of a few months. The heat evolved in the combustion of coal or asphaltum was originally light from the sun, appropriated thousands of years ago. The purple of the grape, the red of the rose, were painted by the sun. The sun is the source of life and power. A variation of a few degrees on either end, and life would cease to be possible. As it is, it vivifies all into being and activity. From the sun, in our perpetual sunshine, plants store up that warmth, which, at a subsequent time, reappears in the glow of health, in the joy and sparkle of youth. Plants form—animals destroy. All flesh is grass.

I hope I do not tire your patience. Perhaps I have said enough; yet I cannot forego the opportunity to say that I am a believer in grapes. I believe in time it will be the most universal, profitable crop in this State. I believe wine to be a necessity, and in time will reform the world. Invalids, old age, even man in his arrogant strength, requires a stimulant, yet he does not want to be a drunkard. As more wine is drank, whisky, brandy, and other like strong drinks will be drank less, and drunkenness become more rare. Much wine is required. France and Germany are no longer able to supply the demand. The wine crop in those countries is getting more uncertain every year. Their wars and standing armies are decreasing the producers, labor in consequence is getting higher every year, and will soon be as high as with us. We can produce three times the quantity of grapes with the same labor. We have no bad years; no disease that affects our crop. Already we are known in the market, and much wine drank as French or German wine is the product of California vineyards. We are beginning to plant the kinds of grapes from which their choicest wines are made, and, having a more favorable climate and every variety of soil, will make as good wine every year as their most favorable years. Nature will not deviate in her course.

It is true, this year we have nearly found bottom. It has been difficult to sell all of our grapes, on account of the misfortune of a distillery burning and there not being sufficient capital to handle all of them. There is no combination to protect this interest, yet in time it can and will be made, for it will pay. I can say, from my own knowledge, that California wine and brandy are continually growing more in favor. Every year there is an increased demand for good wine. The profits are good, but it requires large capital to handle the business; yet it can be procured, and there are plenty of people in our Eastern cities who have the capital, who would gladly take hold of it if they only understood all about it. You here in this city must do something, and when you get it started you will find plenty of help; but don't do it by halves. Be sure that you have enough capital; for if you are cramped for means in the beginning, you will surely fail. We will want, too, our members of Congress and Senators to understand our wants, and get us just and wise legislation. This is not one man's business, nor yet of those that raise grapes, but the business of all—every one who wishes for the prosperity of our country.

One great stride has been taken in our progress—I mean the almost certainty of having a railroad soon; for that will bring us people to settle up our lands, and open up markets for our products. It will be the wand in the magician's hand that will clothe our hills in verdure, and our valleys in bloom. It will bring us men with money, for men with money usually travel by rail only.

But to many of you, I fear this has been a dry subject; but as it became the pleasant duty, by virtue of my office, to say something for your entertainment, I could say "what I knew about farming" better than anything else. It only now remains for me to thank you for your kind attention, hoping that it may be among the dispensations of Providence for us to meet together in increased numbers for many years to come, and that each succeeding year will bring us nearer to the realization of our promises and just expectations.

REPORT

OF THE

NAPA AND SOLANO

AGRICULTURAL AND MECHANICAL ARTS SOCIETY

FOR

THE YEAR 1872.

I. N. Hoag, Esq., *Corresponding Secretary State Board of Agriculture:*

Dear Sir: In pursuance with your request, that I would give the State Board some facts touching the recent organization of the Napa and Solano Agricultural and Mechanical Arts Society, I beg leave to submit as follows:

On the twenty-fourth of May, eighteen hundred and seventy-two, the society was organized, at Farragut Hall, Vallejo, and the Fair Grounds, principal place of business, etc., were permanently located in that township. Subsequently, M. R. Miller, of Pleasant Valley, Solano County, was elected President, John M. Gregory, Jr., Secretary, and General John B. Frisbie, Treasurer. There are six Vice Presidents and forty Directors, twenty of whom are selected from each county. The object to be attained in having so large a number of officers is to secure the services of intelligent and active farmers in the various localities within the district, and one year's experience has shown the utility of their practical coöperation. After the society was formed, it was determined that the financial affairs thereof would be better advanced by the formation of a joint stock company, and accordingly, on the twenty-fifth of June, eighteen hundred and seventy-two, articles of incorporation were filed, placing the management of the stock in the hands of eleven Trustees. The capital stock is one hundred thousand dollars, in shares of twenty-five dollars each, each share of stock constituting the holder thereof a life member. The President, Secretary, and Treasurer of the Board of Trustees ex officio hold the same positions in the society. The undersigned is President for the present year, the Secretary and Treasurer being reëlected. The Board of Managers consists of the officers, James M. Thompson of Napa, John Brownlie, William Carter, and John Callender, of Solano.

The grounds of the society are located some three miles from the City of Vallejo, on the main county road to Napa, and directly contiguous to the California Pacific Railroad, which has a station a few yards distant from the main gate, and embrace sixty acres of land, admirably adapted for its purposes. A mile track has been completed, which promises to be one of the best and fastest in the State—so pronounced by leading turfites who have visited it. Large and commodious stalls for the reception of horses and stock have been erected, and a spacious hotel for the comfort of visitors has been built. The supply of water is unlimited, being derived from the Lake Chabot Water Company, whose source of supply is immediately adjacent thereto.

The first Fair was held in October last, and was a decided success, general satisfaction being given to all those in attendance. The demand for accommodations for stock was far greater than could be conveniently rendered, necessitating further improvements, which will be made during the present year, the society contemplating substantial additions for its promised and increasing patronage. The locality selected is central to the two Counties of Napa and Solano, and can be easily reached in a few hours from San José, Oakland, San Francisco, Stockton, Marysville, Sacramento, and Woodland. These counties are rich in agricultural products, and embrace a wealthy, thriving, and industrious population. Some of the finest breeds of horses and neat cattle in the State are here to be found. The want of such a society has long been felt, and the farming community and stock raisers have signified their intention of giving material assistance hereafter. The inauguration has been auspicious; and necessarily the burden of commencing this work has been confined to a few. The receipts from all sources, embracing stock subscriptions, donations, loans, memberships, and receipts of the Fair, aggregate the sum of twenty thousand eight hundred and seventy-one dollars and eighty-five cents, leaving an indebtedness of six thousand dollars, which has been individually assumed by the Board of Trustees. It is confidently hoped the friends of the association will rally in its behalf, and cancel this obligation at an early date.

Owing to the association having been formed since the adjournment of the last Legislature, it has not in common with similar societies enjoyed the usual appropriation of the State. All of its expenses have been met by individual exertion.

The next Fair will be held on Tuesday, September eighth, lasting five days, and the officers of the State Board are cordially invited to attend and see how much has been accomplished in so short a time.

Yours respectfully,

WM. GOUVERNEUR MORRIS, President.

FARMERS' CLUBS.

Address to the Farmers of the State

BY THE

COMMITTEE OF THE CALIFORNIA FARMERS' UNION.

FARMERS' CLUBS.

In addition to the district and county agricultural societies, there have been and are now being organized Farmers' Clubs in all the agricultural counties of the State. The main idea of these organizations is self-improvement and self-protection. They meet weekly or semi-monthly, and hold social discussions upon subjects pertaining to the calling of the farmer—to his practical cultivation of the soil and management of the farm—the modes of conveying his products to market and manner of disposing of the same—and other subjects of interest and advantage to him. Emanating from these Clubs, and composed of delegates from the same, a State organization, called the California Farmers' Union, has been organized. The objects of this association are, a greater concentration of interest and action of the farmers of the State—the greater intelligence and influence of the producing classes. But we can the better give a correct idea of the objects and aims of the association by giving in full the address to the farmers by the committee.

ADDRESS

TO THE FARMERS OF THE STATE BY THE COMMITTEE OF THE CALIFORNIA FARMERS' UNION.

During the late State Fair there met in Sacramento a Convention, composed of delegates elected by Farmers' Clubs, representing eleven of the best agricultural counties in the State. The objects of that Convention were to consult on the propriety of organizing a State association, as a medium of communication between the local Clubs, to canvass the condition of the agricultural interests, and their relation to the other industries of the State, and, if possible, to devise some means for the better promotion and protection of those interests in the future.

After a thorough interchange of views, and a careful and candid survey of the whole field, it was unanimously resolved by that Convention, that not only the agricultural interests, but all other dependent industries, especially the mechanical and manufacturing, might be materially benefited by such an association, conducted upon broad and enlightened principles.

Hence the organization of the

CALIFORNIA FARMERS' UNION

As a permanent association, the members of which are to consist of delegates from all permanently organized Farmers' Clubs, horticultural, vinicultural, wool, and stock-growing societies in the State, organized for self-protection.

The following are the officers of the Union, who form the Board of Directors, and have the general management of its affairs for the first year: John Bidwell, of Butte, President; J. R. Snyder, of Sonoma; E. S. Holden, of San Joaquin; T. Hart Hyatt, of Alameda; W. S. Manlove, of Sacramento; D. C. Feely, of Santa Cruz; and W. H. Ware, of Santa Clara, Vice Presidents; I. N. Hoag, of Yolo, Secretary; and A. T. Dewey, of Alameda, Treasurer.

The association found it impractical, during the excitement and bustle of the Fair, to determine upon any properly considered and matured plan adequate to the magnitude and difficulties of the questions with which, from interest and duty, they felt called upon to deal. Consequently, that work has been left to the Board of Directors, composed of gentlemen elected with due regard to their intelligence and fidelity to the cause they are expected, not only to honorably, but reasonably represent. For similar reasons the Convention put forth no resolutions,

but appointed the undersigned on a committee of five, to prepare and publish an address to the farmers of the State, setting forth the disadvantages under which the agriculturists, as a class, are laboring, the grievances which they are suffering, and showing the importance of strong and permanent organizations, and early and united action.

In the early history of man, before he had learned the advantages of associations and combinations, his progress towards civilization and power were slow; but the benefits of society were more equally divided. Property and its accompanying advantages were more uniformly distributed. The great difference now existing, between the most civilized and powerful nations of the earth, and the less civilized and weaker nations and tribes, is owing, more than to any other one cause, to the fact that the former have learned the advantages of associations and combinations, and have formed themselves into well and strongly organized Governments, through which they act as a unit for the mental and physical improvement of their individual citizens, for the promotion of their interests, and for the assertion and enforcement of their wishes and rights as against other nations of the earth.

The very occupation of the farmers leads to an isolated life, to primitive and circumscribed rather than modern and cosmopolitan views and modes of action, to individual reliance, and single-handed, and consequently often to weak and ineffectual effort. On the contrary, the occupation of the manufacturer, of the merchant, of the banker, and the general business men of the towns and cities, lead to frequent intercourse and interchange of thought, to associations and organizations, and consequently to collective, powerful, and successful effort. The tiller of the soil was formerly considered the most independent and happy man in the world, and before modern civilization had brought men together in the towns and cities, and taught them the virtue and power there is in associations and combinations, he undoubtedly was so.

By his labor and skill in the cultivation of the soil, he not only produced all the necessaries of his own livelihood, but furnished those necessaries to all other classes; and while they had no advantage over him in other respects, he held within his own hands the means by which he could determine his own pecuniary standing and social position. However, taking his lessons from nature, which dispenses her bounties with an equal hand to all, he never thought or practiced oppression, but conceded to all an equitable division of the benefits of society, and a just distribution of the comforts of life. It is as true now, as then, that the success and prosperity of towns and cities, and the power and influence of States and nations, and indeed the advancement of civilization itself, is based upon agriculture; and yet it is equally true, that through the influence and power of associations and combinations which have been brought to bear by other classes against the farmer, isolated and single-handed as he has allowed himself to remain, his standing and position, both financially and socially, are entirely the reverse of what they formerly were.

In place of the master, he has by his own neglect, by failing to keep up with the spirit of the age, by want of association for mutual, individual, and general improvement, and for the promotion and ennobling of his own calling, by want of combinations for the protection of his own interests against the association of other classes, he has become practically the slave of modern society. To a great extent the lands he cultivates are mortgaged to the banks and moneyed men of the towns and cities for the loan of the very money which they have accumulated by his oppression, and he is compelled to pay such rates of interest as their greed may dictate. Even worse than this, by the political influence of these money loaners and their associates in interest, our laws are so made that the borrower is required to pay the Government taxes, both on the land and money borrowed, as well as on the growing crops, planted with that borrowed money.

Again, when the farmer is so fortunate as to produce a surplus, and desires to send that surplus to the best markets, whether at home or abroad, he finds that not only the carrying facilities within his own country, but even those of the high seas of the world, are as effectually united and combined against him as if owned and controlled by one man. And notwithstanding the article he has for sale bears a high and remunerative price in those markets, the exorbitant freight demanded and forced from him for moving it leaves no profit.

It is a mortifying and humiliating fact to the farmers of this State, who have this year produced twenty million bushels of wheat for export, that one man, by his combination with capitalists, railroad, steamboat, and vessel owners, has almost as complete control over them and their wheat as though that wheat was his own property and they his slaves. That that one man has the power to enforce his will or wish in regard to the disposition and price of that wheat with the same absoluteness as though he had the whole force of the Government at his command.

This is not only a very mortifying and humiliating fact to these farmers, but a very expensive one, costing them in the aggregate from fifteen million dollars to twenty million dollars.

Another reason of complaint may be mentioned—the habitual extortion, by many of the thousand and one middle men, that in this State stand between the producer and the consumer, and demand and receive the lion's share of each article they get their hands on, for the performance, to a large extent, of an unnecessary labor. The customs of these men have grown to be so burdensome and exacting, and so oppressive, both to the producer and consumer, that in many portions of the State large quantities of perishable products, such as fruits and vegetables are annually allowed to go to waste rather than to send them to market, and the producers are unwilling losers of millions.

By the combination of the distillers of whisky in the Atlantic States, and the manufacturers and sellers of poisonous concoctions in our own State, the introduction and use of our own pure products of the vine, both there and here, is not only prevented, but our manufacturers are forced to pay an exacting and unjust tax upon every gallon produced, thus discouraging and crippling an industry which, with a fair show, would soon become one of the most profitable in the State, and yield an annual income of millions to our farmers.

We could go on naming the causes of complaint, and the disadvantages under which we, as a class, are laboring, but farmers need not be told of their grievances. Their bitter experience this year should be sufficient to arouse them to a sense of their position, and to impel them to think and act for themselves before the power to do so is entirely wrested from them.

The remedy lies in our hands. We must assert, recover, and maintain our original and rightful position in the body politic. Being the nursers and supporters, we must resolve no longer voluntarily to remain the slaves of non-producing classes. Let us learn and understand our real position. Let us enter this struggle—for a struggle it really will be—not for ourselves alone, but for our posterity; for the good of the State and nation; for the perpetuality of the reality of republican institutions. For, rest assured, that when the agriculture of our country shall be permanently subjected to any other interest, and shall cease to prosper, then her handmaids, manufactures and commerce, and all the other industries, will linger, and in time die for want of food. History repeats itself, and the fate of ancient Carthage, Troy and Babylon, Greece and Rome, may serve as warnings to us.

Then let us be up and doing. We must meet our oppressors with the same means they have invented to use against us. We must form associations with which to meet associations. We must make combinations with which to oppose combinations. And first of all, we must have a good understanding among ourselves.

We must establish mutual confidence, become acquainted with each other, compare notes and exchange ideas, frequently associate and talk together; and out of this social intercourse and mutual interest will grow plans for the attainment of our just and honorable aims.

A good beginning has already been made in the organization of Farmers' Clubs, and in the formation through these of the "California Farmers' Union." To this extent we have already the means of communication one with another. But the organization embraces comparatively but few of the farmers of the State. It should embrace all. It is now weak, and unable to cope with the power that is arrayed against it. Let the farmers of this State all organize themselves into Clubs, and put themselves into communication with each other and the Farmers' Union, and send representatives to its meetings for the direction and assistance of its executive officers, and we guarantee that no one man, or set of men, in eighteen hundred and seventy-three, or at any time hereafter, will dictate the price of grain or other agricultural products, so as to rob honest labor of millions of its hard-earned money. We will also guarantee that the money loaners of this State will be glad to loan their money to the farmers at greatly reduced rates of interest—rates as fair as those offered on less secure city property—or that foreign capital will supersede them in their business and leave them minus their monthly per cent.

Let the farmers of this State all thus organize and act in concert for the promotion and protection of their own calling and interests, and no common carriers, or combination of common carriers, will hereafter be able to exact of them double price for moving their produce to market, or dictate to them when or how it shall be moved and sent forward.

There are many other impositions now practiced upon the farmer, which the committee deem it unnecessary to enumerate, but which, by organization and concert of action, may be abated and removed; and the committee might enter into an explanation of the plans by which it is possible to remove them, but they do not deem it in the line of their duty, if it were even prudent to do so, in an address to the public, before such plans shall have been thoroughly canvassed by the Board of Directors and indorsed by the power that appointed them.

We trust that this address will meet with a hearty response from the farmers everywhere, and call forth from old and newly-formed Clubs many valuable suggestions and recommendations to the Board of Directors. We also believe that the Board will not be long in forming the plans of action to be carried out by the indorsement of the Clubs, and the coöperative aid of the great body of farmers, who, seeing plainly the time of their advantage, will embrace it.

In addition to the above considerations many others may be used as inducements for the organization of Clubs in every agricultural district where a sufficient number of farmers can assemble together to keep up the interest in their meetings.

The intellectual and social culture of the members is, of itself, no small consideration. The frequent meetings of the farmers and their families, for physical rest and mental and social improvement, especially in the discussion of subjects affecting their dearest interests and every-day welfare, will tend to make farming itself more profitable, honorable, and attractive. Such meetings will give us not only better tilled and better improved farms, but more highly-cultivated and more intelligent, and hence more useful men and women. They will thus be prepared the better to comprehend and overcome the many difficult questions which are constantly presented for solution. With one or two hundred Clubs organized, and embracing the larger part of the farmers of this State, each holding fifty-two meetings and discussions a year, who can foretell the benefits that would result?

Farmers, we earnestly urge you to organize, and to assist you in so doing, and to inform you more definitely of the nature and objects of the California Farmers' Union, we will furnish you, on application, free of cost, blank copies of Constitutions for Clubs and copies of the Constitution of the "Union."

Address I. N. Hoag, Secretary California Farmers' Union, Sacramento.

Respectfully,

I. N. HOAG,
G. G. BLANCHARD,
A. T. DEWEY,
Committee.